MOXA *EtherDevice* Server User's Manual

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MOXA *EtherDevice* Server (EDS)
User's Manual

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1
Introduction

Welcome to MOXA EtherDevice Server™, the world's first intelligent Ethernet Device Server specially designed for connecting Ethernet-enabled devices in industrial field applications.

The following topics are covered in this chapter:

- **Inside the Future of Industrial Ethernet Technology**
- **MOXA EtherDevice Server™**
- **Package Checklist**
- **Features**
- **Specifications**
- **Top/Front/Rear Panel Views of ED6008**
- **Top/Front/Rear Panel Views of ED6008-M-SC**
- **Top/Front/Rear Panel Views of ED6008-S-SC**
- **Top/Front/Rear Panel Views of ED6008-MM-SC**
- **Top/Front/Rear Panel Views of ED6008-SS-SC**

Inside the Future of Industrial Ethernet Technology

The trend in industrial communications and automation applications

As the world's network and information technology becomes more mature, the trend is to use Ethernet as the major communications interface in many industrial communications and automation applications. In fact, a whole new industry has sprung up to provide Ethernet products that comply with the requirements of demanding industrial applications.

Industrial vs. Commercial

Users have found that when moving Ethernet from the comfortable office environment to the harsh and less predictable industrial environment, the commercial Ethernet equipment available in today's market simply cannot meet the high reliability requirements demanded by industrial applications. This means that a more robust type of network equipment, commonly referred to as *industrial* Ethernet equipment, is required for these applications.

Informative vs. Passive

Since industrial Ethernet devices are often located at the endpoints of a system, such devices cannot always know what's happening elsewhere on the network. This means that industrial Ethernet communication equipment that connects these devices must take responsibility for providing system maintainers with real-time alarm messages.

MOXA EtherDevice Server™

MOXA EtherDevice Server comes with a suite of useful maintenance and monitoring functions, and is designed to provide smooth and reliable operation in harsh industrial environments. You will find that MOXA EtherDevice Server establishes a new industrial Ethernet benchmark. It is excellent for keeping automation systems running continuously, is ideal for sending status reports to help prevent system damages and losses, is a great tool for mastering your industrial Ethernet networks, and is well-suited for use with industrial device control networks.

NOTE *Throughout this User's Manual, we often use **EDS** as an abbreviation for MOXA EtherDevice Server:*

EDS = MOXA EtherDevice Server

Package Checklist

MOXA EtherDevice Server is shipped with the following items. If any of these items is missing or damaged, please contact your customer service representative for assistance.

- ❑ MOXA EtherDevice Server
- ❑ User's Manual
- ❑ MOXA Product Warranty booklet
- ❑ Panel mounting kit
- ❑ Console port cable (RJ45 to DB9)
- ❑ Protective caps for unused ports

Features

Excellent for keeping automation systems running continuously

- Line-Swap fast recovery (patent pending)
- Redundant Ethernet Ring capability
- Redundant power inputs
- Hardened design for harsh environments
  - ❖ 0℃ to 60℃ operating termperature
  - ❖ IP 30, rugged high-strength case
  - ❖ Fanless design
  - ❖ DIN-Rail or panel mounting ability
- Watch-dog self-saver™

Dynamically know the status of networked industrial devices

- Automatically sends warning e-mail when an exception is detected
- Automatically sends warning e-mail when Ethernet traffic builds up
- Signals the system administrator via a Digital Output (DO) line when a malfunction occurs

Key management functions let you easily master your industrial Ethernet network

- Set up a mirror port for better online data monitoring
- Assign IP addresses to connected devices
- Send *ping* commands to identify network segment integrity
- Easily test cable wiring

Specifications

Interface	
RJ45 Ports	10/100BaseT(X) auto negotiation speed, F/H duplex mode, and auto MDI/MDI-X connection
Fiber Ports	100BaseFX ports (SC connector)
LED Indicators	Power, Faults, ACT, LNK, 10/100
Alarm Contact	One relay output, current carrying capacity of 1A @ 24 VDC
Technology	
Standards	IEEE802.3, 802.3u, 802.3x, 802.1D
Forward and Filtering Rate	148810 pps
Packet Buffer Memory	256 KB
Processing Type	Store and Forward, with IEEE802.3x full duplex, non-blocking flow control
Address Table Size	4K uni-cast addresses
Latency	Less than 5 μs
Management	SNMP V1.2c, MIB-II, Ethernet-like MIB, OPC Server (future release)
Optical Fiber	
Distance	Single mode fiber for 15 km, Multi mode fiber for 2 km
Wavelength	1310 nm
Min. TX Output	-15 dBm (Single), -19 dBm (Multi)
Max. TX Output	-8 dBm (Single), -14 dBm (Multi)
Sensitivity	-36.4 dBm (Single), -35.2 dBm (Multi)

Power

Input Voltage	9 to 32 VDC, redundant inputs
Input Current (@24V)	0.35A (ED6008) 0.45A (ED6008-M-SC, ED6008-S-SC) 0.55A (ED6008-MM-SC, ED6008-SS-SC)
Connection	Removable Terminal Block (maximum cable diameter = 1.5 mm)
Overload Current Protection	Present, can withstand 2.5A
Reverse Polarity Protection	Present

Mechanical

Casing	IP30 protection, aluminum case
Dimensions	51.5 × 136.7 × 101.2 mm (W × H × D)
Weight	0.57 kg
Installation	DIN-Rail, Wall Mounting

Environment

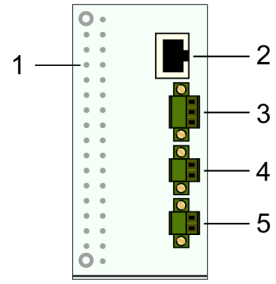
Operating Temperature	0°C to 60°C (32°F to 140°F)
Storage Temperature	-40°C to 85°C (-40°F to 185°F)
Ambient Relative Humidity	10% to 95% (non-condensing)

Regulatory Approvals

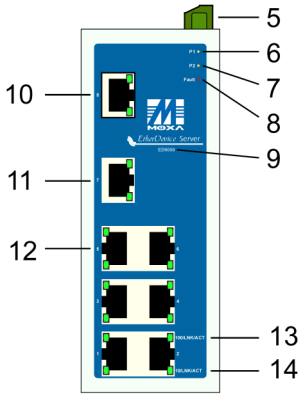
UL/CUL	UL-1950
TUV	EN60950
FCC	Part 15 class A
CE	EMI: EN55022 EMS: EN61000-4-2(ESD), EN61000-4-3(RS) EN61000-4-4(EFT) EN61000-4-5(SURGE) EN61000-4-6(CS) EN61000-4-8(PM) EN61000-4-12(DIP)
Laser Protection	Class 1, complies with EN60825
Shock	IEC 60068-2-27
Free Fall	IEC 60068-2-32
Vibration	IEC 60068-2-6
MTBF	77,500 hours
WARRANTY	5 years

Top/Front/Rear Panel Views of ED6008

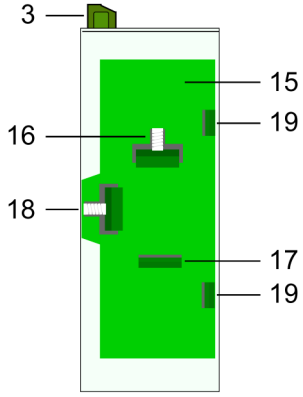
Top Panel View



Front Panel View



Rear Panel View



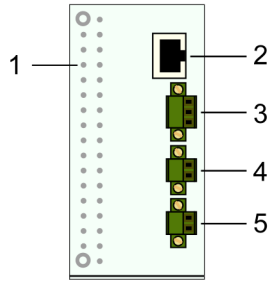
1. Heat dissipation orifices
2. RS-232 console port (RJ45)
3. Alarm contact
4. Power input P2
5. Power input P1

6. Power input P1 LED
7. Power input P2 LED
8. Fault LED
9. Model Name: ED6008
10. Port 8: 10/100BaseT(X)
11. Port 7: 10/100BaseT(X)
12. Ports 1 to 6: 10/100BaseT(X)
13. 100/LNK/ACT LED
14. 10/LNK/ACT LED

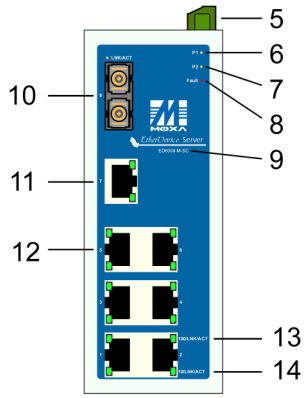
15. DIN-Rail attachment plate
16. Spring for vertical DIN-Rail attachment
17. Plastic support for vertical DIN-Rail attachment
18. Spring for horizontal DIN-Rail attachment
19. Plastic supports for horizontal DIN-Rail attachment

Top/Front/Rear Panel Views of ED6008-M-SC

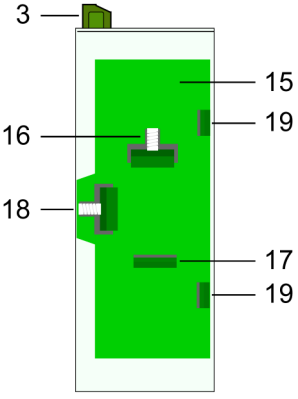
Top Panel View



Front Panel View



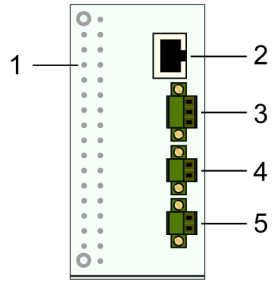
Rear Panel View



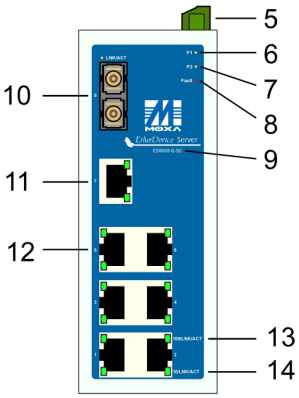
1. Heat dissipation orifices
2. RS-232 console port (RJ45)
3. Alarm contact
4. Power input P2
5. Power input P1
6. Power input P1 LED
7. Power input P2 LED
8. Fault LED
9. Model Name: ED6008-M-SC
10. Port 8: Multi mode 100BaseFX (SC connector)
11. Port 7: 10/100BaseT(X)
12. Ports 1 to 6: 10/100BaseT(X)
13. 100/LNK/ACT LED
14. 10/LNK/ACT LED
15. DIN-Rail attachment plate
16. Spring for vertical DIN-Rail attachment
17. Plastic support for vertical DIN-Rail attachment
18. Spring for horizontal DIN-Rail attachment
19. Plastic supports for horizontal DIN-Rail attachment

Top/Front/Rear Panel Views of ED6008-S-SC

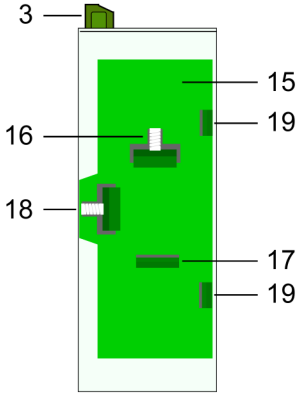
Top Panel View



Front Panel View



Rear Panel View



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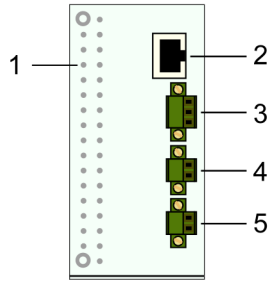
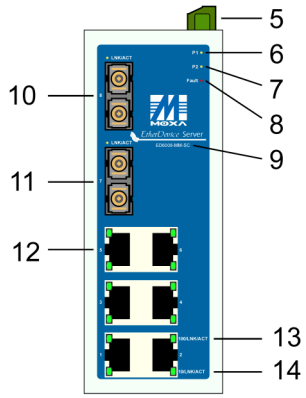
2. RS-232 console port (RJ45)
3. Alarm contact
4. Power input P2
5. Power input P1
6. Power input P1 LED
7. Power input P2 LED
8. Fault LED
9. Model Name: ED6008-S-SC
10. Port 8: Single mode 100BaseFX (SC connector)
11. Port 7: 10/100BaseT(X)
12. Ports 1 to 6: 10/100BaseT(X)
13. 100/LNK/ACT LED
14. 10/LNK/ACT LED
15. DIN-Rail attachment plate
16. Spring for vertical DIN-Rail attachment
17. Plastic support for vertical DIN-Rail attachment
18. Spring for horizontal DIN-Rail attachment
19. Plastic supports for horizontal DIN-Rail attachment

Top/Front/Rear Panel Views of ED6008-MM-SC

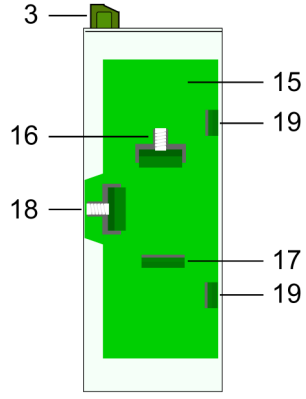
Top Panel View



Front Panel View



Rear Panel View



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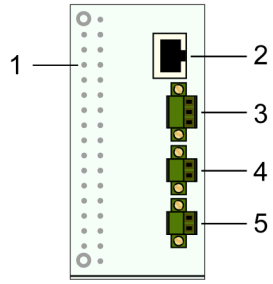
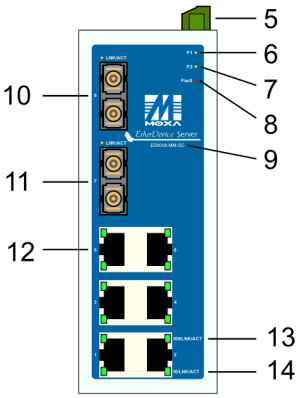
7. Power input P2 LED
8. Fault LED
9. Model Name: ED6008-MM-SC
10. Port 8: Multi mode 100BaseFX (SC connector)
11. Port 7: Multi mode 100BaseFX (SC connector)
12. Ports 1 to 6: 10/100BaseT(X)
13. 100/LNK/ACT LED
14. 10/LNK/ACT LED
15. DIN-Rail attachment plate
16. Spring for vertical DIN-Rail attachment
17. Plastic support for vertical DIN-Rail attachment
18. Spring for horizontal DIN-Rail attachment
19. Plastic supports for horizontal DIN-Rail attachment

Top/Front/Rear Panel Views of ED6008-SS-SC

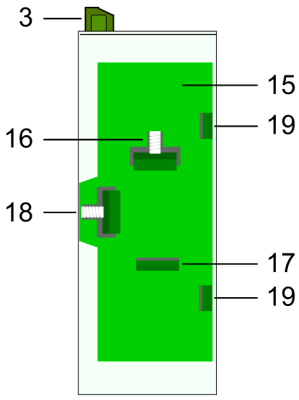
Top Panel View



Front Panel View



Rear Panel View



1. Heat dissipation orifices
2. RS-232 console port (RJ45)
3. Alarm contact
4. Power input P2
5. Power input P1

6. Power input P1 LED
7. Power input P2 LED
8. Fault LED
9. Model Name: ED6008-SS-SC
10. Port 8: Single mode 100BaseFX (SC connector)
11. Port 7: Single mode 100BaseFX (SC connector)
12. Ports 1 to 6: 10/100BaseT(X)
13. 100/LNK/ACT LED
14. 10/LNK/ACT LED

15. DIN-Rail attachment plate
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17. Plastic support for vertical DIN-Rail attachment
18. Spring for horizontal DIN-Rail attachment
19. Plastic supports for horizontal DIN-Rail attachment

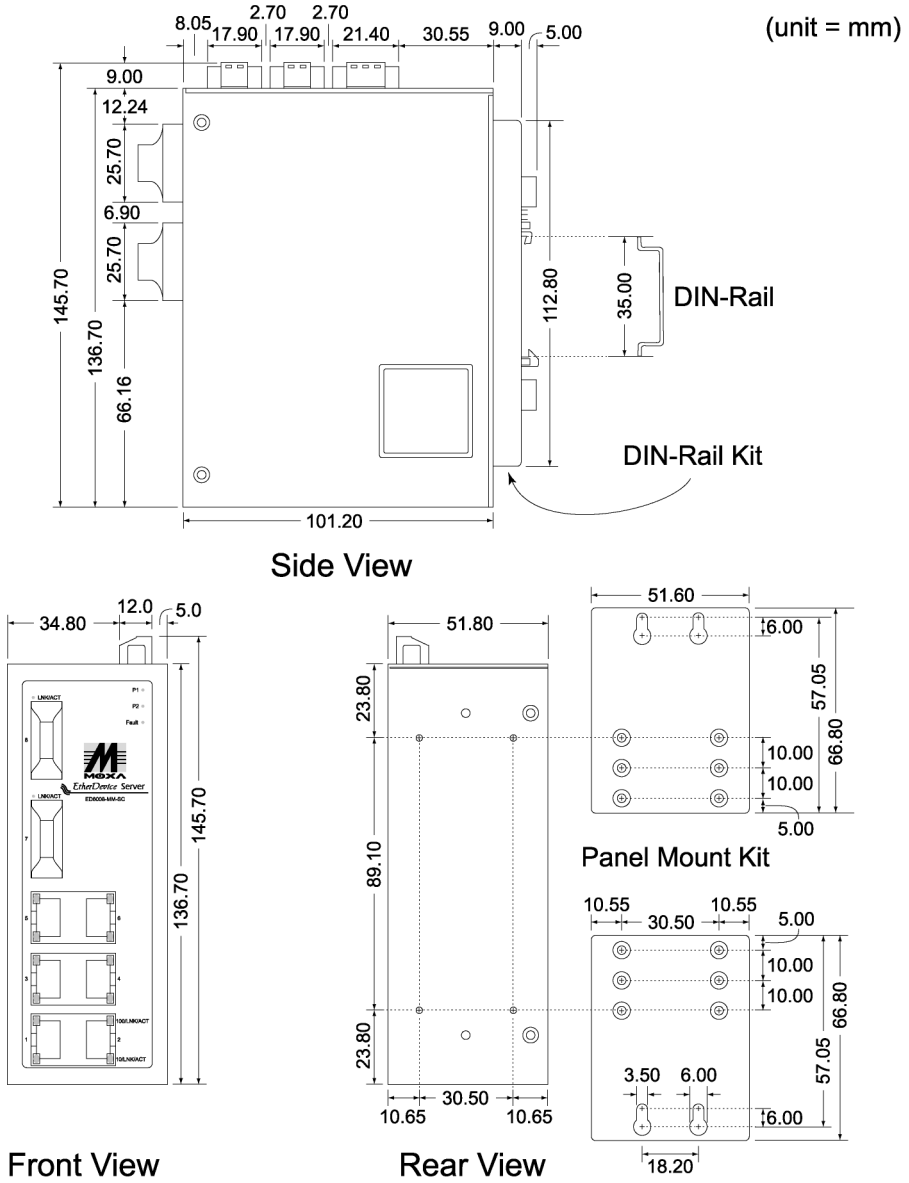
2

Installing MOXA EtherDevice Server

This chapter includes information about installing MOXA EtherDevice Server. The following topics are covered:

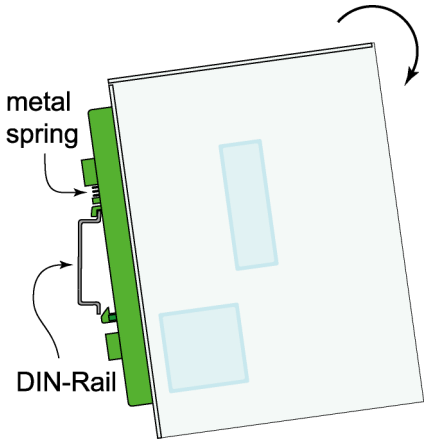
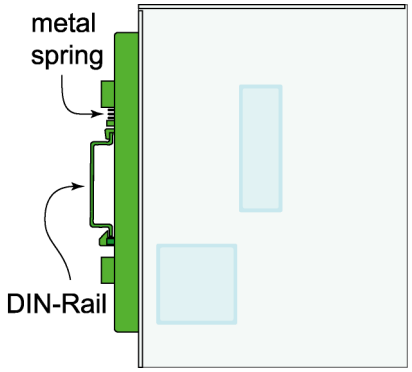
- **Mounting Dimensions**
- **DIN-Rail Mounting**
- **Wall Mounting**

Mounting Dimensions



DIN-Rail Mounting

For many industrial applications, you will find it convenient to attach MOXA EtherDevice Server to a DIN-Rail, as described below. The green plastic DIN-Rail attachment plate should already be fixed to the back panel of EDS when you take it out of the box. If you need to reattach the DIN-Rail attachment plate to EDS, be sure the stiff metal spring is situated towards the top, as shown in the figures below.

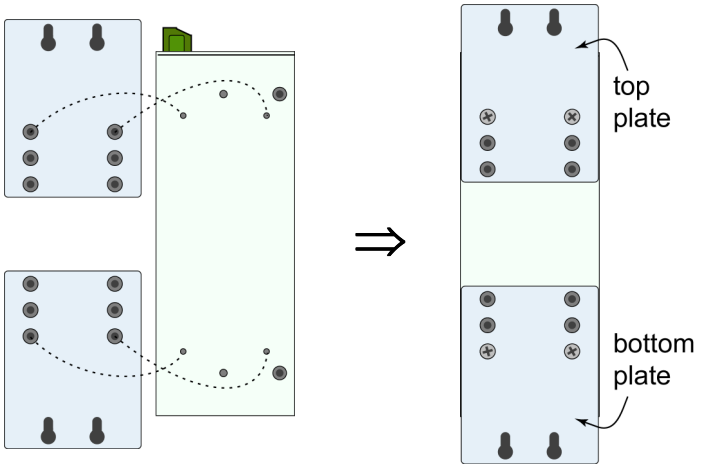
STEP 1: Insert the top of the DIN-Rail into the slot just below the stiff metal spring. Apply a few pounds of downward force on the top rear of the server, and then rotate the server as shown below.	**STEP 2**: The DIN-Rail attachment unit will snap into place as shown below.
	

To remove MOXA EtherDevice Server from the DIN-Rail, simply reverse Steps 1 and 2 above. Grasp EDS with both hands, apply a slight amount of downwards force at the top rear of the server, and then rotate the bottom of the server towards its front panel. When the bottom of the DIN-Rail loses contact with the attachment plate, simply lift the server up and away from the DIN-Rail.

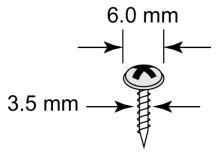
Wall Mounting

For some applications, you will find it convenient to mount MOXA EtherDevice Server on the wall, as illustrated below.

STEP 1: Remove the green plastic DIN-Rail attachment plate from MOXA EtherDevice Server's rear panel, and then attach the wall mount plates, as shown in the diagram below. Note that each plate has three rows of two screw holes—use whichever row of screw holes is most appropriate for your application. You should also differentiate between the *top plate* and *bottom plate*, as indicated below. Once the plates are attached, the keyhole shaped apertures should be such that the large part of the hole is at the bottom of the keyhole.



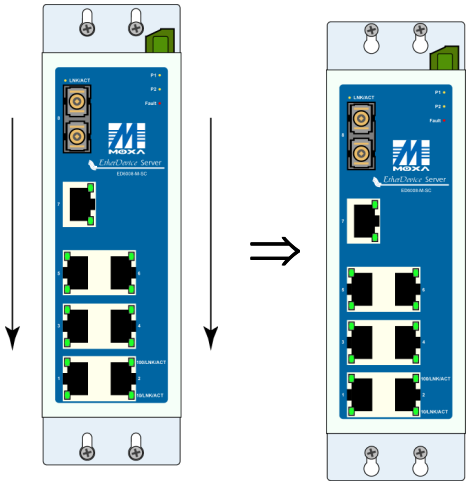
STEP 2: Mounting MOXA EtherDevice Server on the wall requires 4 screws. Use the server, with wall mount plates attached, as a guide to mark the correct locations of the 4 screws. The heads of the screws should be less than 6.0 mm in diameter, and the shafts should be less than 3.5 mm in diameter, as shown in the figure to the right.



NOTE Test the screw head and shank size by inserting the screw into one of the keyhole shaped apertures of the Wall Mounting Plates, before it is screwed into the wall.

Do not screw the screws in all the way—leave a space of about 2 mm to allow room for sliding the wall mount panel between the wall and the screws.

STEP 3: Once the screws are fixed in the wall, insert the four screw heads through the large parts of the keyhole shaped apertures, and then slide MOXA EtherDevice Server downwards, as indicated below. Tighten the four screws for added stability.



3

Wiring MOXA EtherDevice Server

This chapter includes technical information about connecting MOXA EtherDevice Server to an external power source and to an external alarm system, and shows you what types of cables you should use for the Console port, Ethernet ports, and optical fiber ports. The following topics are covered:

- **Wiring Requirements**
- **Grounding MOXA EtherDevice Server**
- **Wiring the Alarm Contact**
- **Wiring the Redundant Power Inputs**
- **Communication Connections**
  - RS-232 Connection
  - 10/100BaseTx Ethernet Port Connection
  - 100BaseFx Ethernet Port Connection

Wiring Requirements

ATTENTION

Safety First!

Be sure to disconnect the power cord before installing and/or wiring your MOXA EtherDevice Server.

ATTENTION

Calculate the maximum possible current in each power wire and common wire. Observe all electrical codes dictating the maximum current allowable for each wire size.

If the current goes above the maximum ratings, the wiring could overheat, causing serious damage to your equipment.

ATTENTION

Temperature Caution!

Please take care when handling the EDS casing. When plugged in, EDS's internal components generate heat, and consequently the casing may feel hot to the touch.

You should also pay attention to the following points:

- Use separate paths to route wiring for power and devices. If power wiring and device wiring paths must cross, make sure the wires are perpendicular at the intersection point.

  NOTE: Do not run signal or communications wiring and power wiring in the same wire conduit. To avoid interference, wires with different signal characteristics should be routed separately.

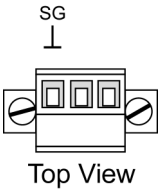
- You can use the type of signal transmitted through a wire to determine which wires should be kept separate. The rule of thumb is that wiring that shares similar electrical characteristics can be bundled together.
- Keep input wiring and output wiring separate.
- Where necessary, it is strongly advised that you label wiring to all devices in the system.

Grounding MOXA EtherDevice Server

Grounding and wire routing helps limit the effects of noise due to electromagnetic interference (EMI). Run the ground connection from the ground screw to the grounding surface prior to connecting devices.

ATTENTION

This product is intended to be mounted to a well-grounded mounting surface such as a metal panel.

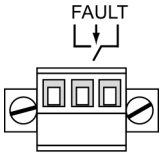


SG: The *Shielding Ground* contact is the left most contact of the 3-terminal Alarm Contact terminal block connector when viewed from the angle shown here. Connect the SG wire to an appropriate grounded metal surface.

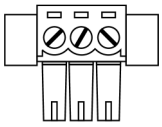
Wiring the Alarm Contact

The Alarm Contact terminal block connector is similar to the power terminal block connector discussed in the next section. You may refer to the next section for detailed instructions on how to connect the wires to the terminal block connector, and how to attach the terminal block connector to the terminal block receptor.

In this section, we explain the meaning of the two contacts used to connect the Alarm Contact.



Top View

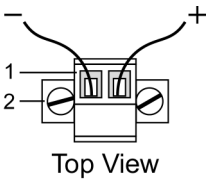


Front View

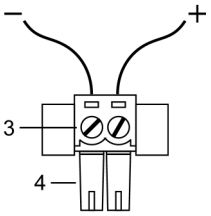
FAULT: The two right-most contacts of the 3-terminal terminal block connector form a closed circuit when MOXA EtherDevice Server is receiving power from *both* DC power inputs. The circuit opens if power to *one of the* power inputs is cut off, or the MOXA EtherDevice Server self-test fails.

Wiring the Redundant Power Inputs

MOXA EtherDevice Server has two DC inputs located on the top panel. Top and front views of one of the terminal block connectors used to connect to a DC power source are shown here. Note that when viewed from this angle, the negative DC wire goes in the terminal block connector's left terminal, and the positive DC wire goes in the right terminal.



Top View



Front View

STEP 1: Insert the negative/positive DC wires into the left/right terminals (1) on the top of the terminal block connector.

STEP 2: To keep the DC wires from pulling loose, use a small flat-blade screwdriver to tighten the wire-clamp screws (3) on the front of the terminal block connector.

STEP 3: Insert the plastic terminal block connector prongs (4) into the terminal block receptor, which is permanently fixed to MOXA EtherDevice Server's top panel.

STEP 4: Use a small flat-blade screwdriver to tighten the two screws (2) on the top of the terminal block connector to fix it to the terminal block receptor.

Communication Connections

All models of MOXA EtherDevice Server have one RJ45 console port (RS-232 interface), and between six and eight 10/100BaseTX Ethernet ports. Some models also have one or two 100BaseFX (SC-type connector) fiber ports.

In this section, we present two types of diagrams—Pinout Diagrams and Cable Wiring Diagrams—to convey information about the ports and the cables used to connect MOXA EtherDevice Server to other devices:

Pinouts The meaning of the "Pinouts" diagrams is straightforward—the diagrams simply display the type of signal passing through each of the port's pins.

Cable Wiring Diagrams labeled "Cable Wiring" present standard cable wiring schemes for cables used to connect MOXA EtherDevice Server's ports to other devices. These diagrams display three pieces of information:

1. When building your own cable, refer to the "pin-to-pin" Cable Wiring information displayed between the two vertical dashed lines to learn which pin of the left connector should be connected to which pin of the right connector.
2. The information to the left of the left vertical dashed lines gives the pinouts of the relevant MOXA EtherDevice Server port.
3. The information to the right of the right vertical dashed line gives the pinouts of the opposing device's port.

NOTE

1. The pin numbers for male DB9 and DB25 connectors, and hole numbers for female DB9 and DB25 connectors are labeled *on the connector*. However, the numbers are typically quite small, so you may need to use a magnifying glass to see the numbers clearly.

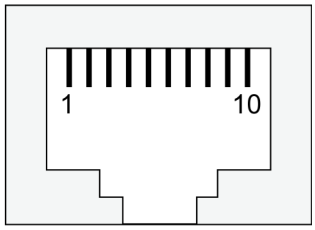
2. The pin numbers for both 8-pin and 10-pin RJ45 connectors (and ports) are typically *not* labeled on the connector (or port). Refer to the Pinout and Cable Wiring diagrams below to see how RJ45 pins are numbered.

RS-232 Connection

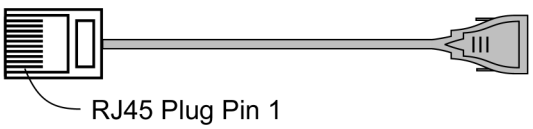
MOXA EtherDevice Server has one RS-232 (10-pin RJ45) console port, located on the top panel. Use either an RJ45-to-DB9 or RJ45-to-DB25 cable (see the cable wiring diagrams below) to connect MOXA EtherDevice Server's console port to your PC's COM port. You may then use a console terminal program, such as MOXA PComm Terminal Emulator, to access MOXA EtherDevice Server's console configuration utility.

RJ45 (10-pin) Console Port Pinouts

10-Pin	Description
1	DCD
2	DSR
3	RTS
4	GND
5	TxD
6	RxD
7	GND
8	CTS
9	DTR
10	-----

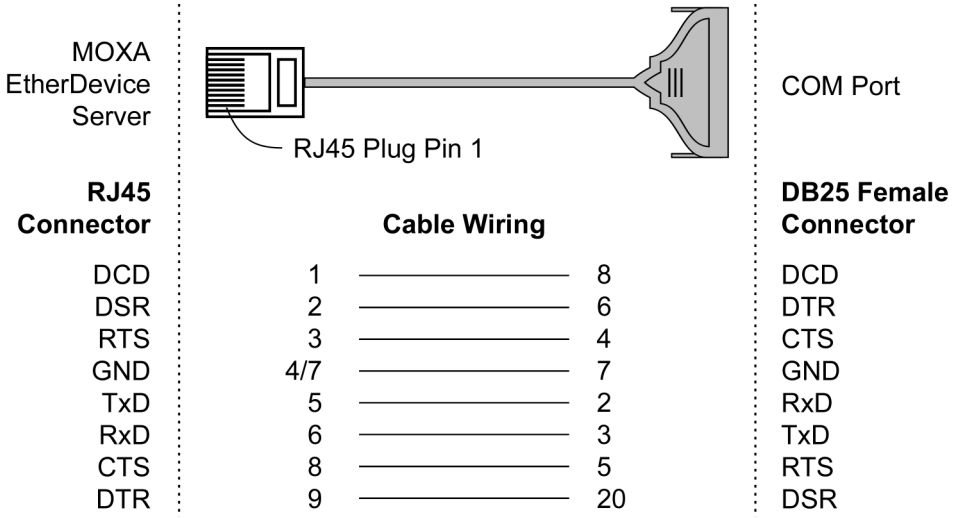


RJ45 (10-pin) to DB9 (F) Cable Wiring



MOXA EtherDevice Server		COM Port
RJ45 Connector	**Cable Wiring**	**DB9 Female Connector**
DCD	1 —— 1	DCD
DSR	2 —— 6	DTR
RTS	3 —— 7	CTS
GND	4/7 —— 5	GND
TxD	5 —— 3	RxD
RxD	6 —— 2	TxD
CTS	8 —— 8	RTS
DTR	9 —— 4	DSR

RJ45 (10-pin) to DB25 (F) Cable Wiring



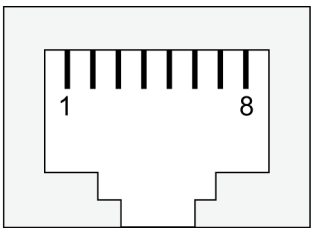
10/100BaseTx Ethernet Port Connection

The 10/100BaseTX ports located on MOXA EtherDevice Server's front panel are used to connect to Ethernet-enabled devices. Most users will choose to configure these ports for *Auto MDI/MDI-X* mode, in which case the port's pinouts are automatically adjusted depending on the type of Ethernet cable used (straight-through or cross-over), and the type of device (NIC-type or HUB/Switch-type) connected to the port.

In what follows, we give pinouts for both MDI (NIC-type) ports and MDI-X (HUB/Switch-type) ports. We also give cable wiring diagrams for straight-through and cross-over Ethernet cables.

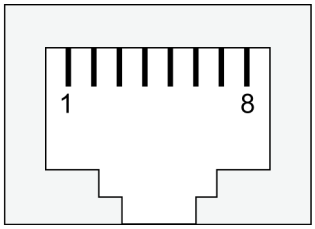
RJ45 (8-pin, MDI) Port Pinouts

8-Pin	Description
1	Tx+
2	Tx-
3	Rx+
6	Rx-

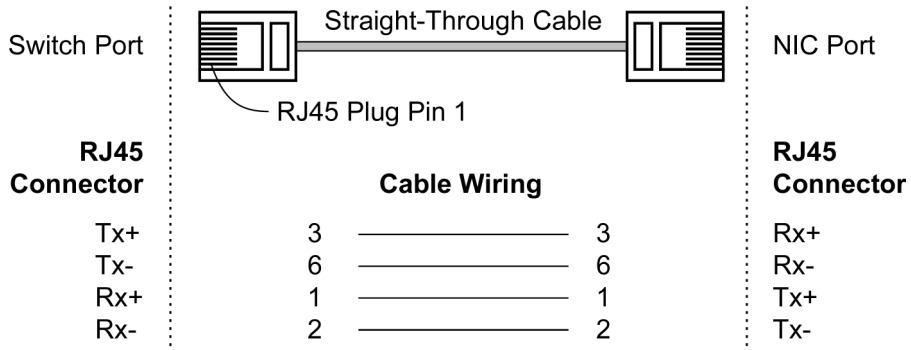


RJ45 (8-pin, MDI-X) Port Pinouts

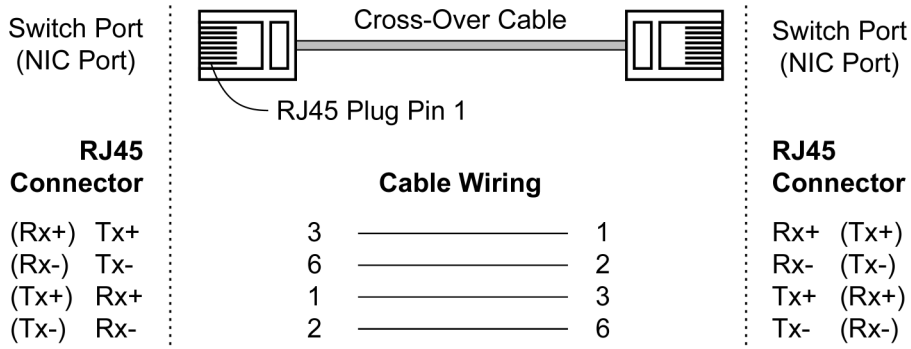
8-Pin	Description
1	Rx+
2	Rx-
3	Tx+
6	Tx-



RJ45 (8-pin) to RJ45 (8-pin) Straight-Through Cable Wiring



RJ45 (8-pin) to RJ45 (8-pin) Cross-Over Cable Wiring

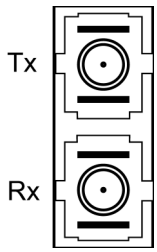

Switch Port (NIC Port)
Cross-Over Cable
Switch Port (NIC Port)
RJ45 Plug Pin 1
RJ45 Connector
Cable Wiring
RJ45 Connector
(Rx+) Tx+ 3 1 Rx+ (Tx+)
(Rx-) Tx- 6 2 Rx- (Tx-)
(Tx+) Rx+ 1 3 Tx+ (Rx+)
(Tx-) Rx- 2 6 Tx- (Rx-)

100BaseFx Ethernet Port Connection

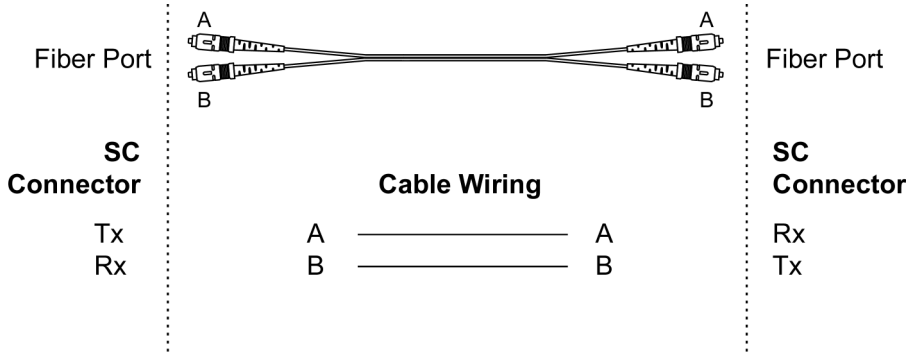
The concept behind the SC port and cable is quite straightforward. Suppose you are connecting devices I and II. Contrary to electrical signals, optical signals do not require a circuit in order to transmit data. Consequently, one of the optical lines is used to transmit data from device I to device II, and the other optical line is used transmit data from device II to device I, for full-duplex transmission.

All you need to remember is to connect the Tx (transmit) port of device I to the Rx (receive) port of device II, and the Rx (receive) port of device I to the Tx (transmit) port of device II. If you are making your own cable, we suggest labeling the two sides of the same line with the same letter (A-to-A and B-to-B, as shown below, or A1-to-A2 and B1-to-B2).

SC-Port Pinouts



SC-Port to SC-Port Cable Wiring



4

Hardware Overview

This chapter is an overview of MOXA EtherDevice Server's various hardware features. The following topics are discussed:

- **Redundant Power Inputs**
- **Alarm Contact**
- **LED Indicators**
- **Auto MDI/MDI-X Connection**
- **Fiber Ports**
- **Dual Speed Functionality and Switching**
- **Switching, Filtering, and Forwarding**
- **Switching and Address Learning**
- **Auto-Negotiation and Speed Sensing**

Redundant Power Inputs

MOXA EtherDevice Server has two DC power inputs located on its top panel. For detailed instructions on how to connect the power wires to the terminal block connector, see the *Wiring the Redundant Power Inputs* section from Chapter 3.

From the user's point of view, the function of the redundant power inputs is quite straightforward. Both inputs can be connected simultaneously to live DC power sources. If one power source fails, the other live source acts as a backup, and automatically supplies all of MOXA EtherDevice Server's power needs.

Alarm Contact

MOXA EtherDevice Server has one Alarm Contact located on the top panel. For detailed instructions on how to connect the Alarm Contact power wires to the 3-terminal terminal block connector, see the *Wiring the Alarm Contact* section from Chapter 3.

The Alarm Contact has two terminals that form a Fault circuit for connecting to an alarm system. These two contacts form a closed circuit when MOXA EtherDevice Server is receiving power from *both* DC power inputs. The circuit opens if power to *one* of the power inputs is cut off, or if the MOXA EtherDevice Server self-test fails, alerting the user to check either the power supply or function of the Server.

A typical scenario would be to connect the Fault circuit to a warning light located in the control room. The light can be set up to either switch on, or start blinking when a fault is detected.

LED Indicators

The front panel of MOXA EtherDevice Server contains several LED indicators. The function of each LED is described in the table below.

LED	Color	State	Description
P1	AMBER	On	Power is being supplied to power input P1
		Off	Power is **not** being supplied to power input P1
P2	AMBER	On	Power is being supplied to power input P2
		Off	Power is **not** being supplied to power input P2
Fault	RED	On	MOXA EtherDevice Server's self-test failed or power to **one of the** power inputs is cut off.
		Off	MOXA EtherDevice Server's self-test was successful
10/LNK/ACT	GREEN	On	10 Mbps link has been established
		Blinking	Data is being transmitted at 10 Mbps
		Off	Port's 10 Mbps link is inactive
100/LNK/ACT	GREEN	On	100 Mbps link has been established
		Blinking	Data is being transmitted at 100 Mbps
		Off	Port's 100 Mbps link is inactive
LNK/ACT	AMBER	On	100BaseFX port is active
		Blinking	Data is being transmitted at 100 Mbps
		Off	100BaseFX port is inactive

Auto MDI/MDI-X Connection

The Auto MDI/MDI-X function allows users to connect MOXA EtherDevice Server's 10/100BaseTX ports to any kind of Ethernet device, without paying attention to the type of Ethernet cable being used for the connection. To understand the meaning of this statement, you simply need to remember that there are two types of Ethernet ports, and two types of Ethernet cables. See the *10/100BaseTX Ethernet Port Connection* section from Chapter 3 for detailed Pinout and Cable Wiring diagrams. In this section, we give a short primer of the terminology, and indicate which cable should be used to connect which types of ports.

There are two types of Ethernet port in use. The first type is called an MDI (Medium Dependant Interface) port, and is what you find on your PC's NIC (Network Interface Card). The second type is called an MDI-X (Medium Dependant Interface, Crossover) port, and is the type of port found in a standard HUB or switch. For this reason, we often refer to an MDI port as being *NIC-type*, and an MDI-X port as being *HUB/Switch-type*.

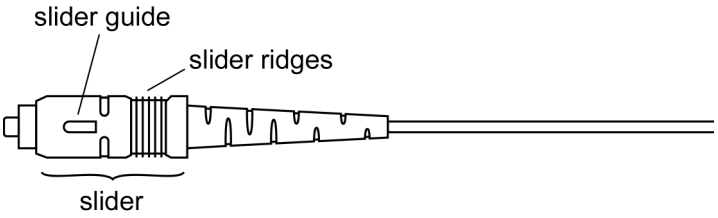
There are also two types of Ethernet cable in use. The first type is a *straight-through* cable, and the second type is a *cross-over* cable. The general connection rules are:

- A *straight-through* cable is used to connect dislike ports:
  MDI ↔ MDI-X.
- A *cross-over* cable is used to connect like ports:
  MDI ↔ MDI or MDI-X ↔ MDI-X.

For example, you should use a straight-through cable to connect your computer's Ethernet NIC to a HUB or switch, but use a cross-over cable to connect your computer's Ethernet NIC to another computer's Ethernet NIC.

Fiber Ports

MOXA EtherDevice Server's fiber switched ports operate at a fixed 100 Mbps speed and full-duplex mode to provide the best performance. The fiber ports are factory-built as either a multi-mode or single-mode SC connector. Consequently, you should use fiber cables that have SC connectors at both ends. When plugging the connector into the port, make sure the slider guide is positioned to the right side so that it fits snuggly into the port.



The 100 Mbps fiber ports are switched ports, and perform as a domain, providing a high bandwidth backbone connection that supports long fiber cable distances (up to 2 km for multi-mode, and 15 km for single-mode) for installation versatility.

Dual Speed Functionality and Switching

MOXA EtherDevice Server's 10/100 Mbps RJ45 switched ports can be configured for 10 Mbps operation, 100 Mbps operation, or to auto-negotiate with the connected device for the fastest data transmission rate supported by both devices.

All models of MOXA EtherDevice Server are plug-and-play devices, so that software configuration is not required at installation, or during maintenance. The half/full duplex mode for the switched RJ45 ports is user dependent and changes (by auto-negotiation) to full or half duplex, depending on which transmission speed is supported by the attached device.

Switching, Filtering, and Forwarding

Each time a packet arrives at one of the switched ports, a decision is made to either filter or forward the packet. Packets with source and destination addresses belonging to the same port segment will be filtered, constraining those packets to one port, and relieving the rest of the network from the need to process them. A packet with destination address on another port segment will be forwarded to the appropriate port, and will not be sent to the other ports where it is not needed. Packets that are used in maintaining the operation of the network (such as the occasional multi-cast packet) are forwarded to all ports.

MOXA EtherDevice Server operates in the store-and-forward switching mode, which eliminates bad packets and enables peak performance to be achieved when there is heavy traffic on the network.

Switching and Address Learning

MOXA EtherDevice Server has an address table that can hold up to 4K node addresses, which makes it suitable for use with large networks. The address tables are self-learning, so that as nodes are added or removed, or moved from one segment to another, MOXA EtherDevice Server automatically keeps up with new node locations.

An address-aging algorithm causes the least-used addresses to be deleted in favor of newer, more frequently used addresses. To reset the address buffer, power down the unit and then power it back up.

Auto-Negotiation and Speed Sensing

All of MOXA EtherDevice Server's RJ45 Ethernet ports independently support auto-negotiation for speeds in the 10BaseT and 100BaseTX modes, with operation according to the IEEE 802.3u standard. This means that some nodes could be operating at 10 Mbps, while at the same time, other nodes are operating at 100 Mbps.

Auto-negotiation takes place when an RJ45 cable connection is made, and then each time a LINK is enabled. MOXA EtherDevice Server advertises its capability for using either 10 Mbps or 100 Mbps transmission speeds, with the device at the other end of the cable expected to similarly advertise. Depending on what type of device is connected, this will result in agreement to operate at a speed of either 10 Mbps or 100 Mbps.

If a MOXA EtherDevice Server RJ45 Ethernet port is connected to a non-negotiating device, it will default to 10 Mbps speed and half-duplex mode, as required by the IEEE 802.3u standard.

5

How To Use MOXA EtherDevice Server

In this chapter, we give the reader some general tips about how to use MOXA EtherDevice Server. Some users will simply want to plug in the power, connect the switch to their Ethernet-enabled devices, and then go to work right away. Other users will want to utilize MOXA EtherDevice Server's basic device management functions, whereas some will want to make full use of MOXA EtherDevice Server's advanced device management functions.

The following topics are covered in this chapter:

- **Basic Switching Function**
- **Redundant Ethernet Ring Quick Setup**
- **Basic Device Management**
- **Advanced Device Management**
  - DHCP Server Configuration

Basic Switching Function

The most basic function of MOXA EtherDevice Server is as an Ethernet switch. To just make use of EDS's fast Ethernet switching capability, we suggest using Model ED6008, which has 8 10/100BaseTX ports. In fact, after taking EDS out of the box, you can immediately attach it to a power source, plug Ethernet devices into the 10/100BaseTX ports, and then go to work. EDS will provide the same reliable, fast Ethernet switching ability provided by other high level switches.

EDS's fast Ethernet switching ability can be exploited in two basic ways:

ED6008 as a standalone switch

This type of setup allows you to provide up to 8 Ethernet-enabled devices with the ability to communicate on their own isolated, private network. In this case, you must set up the attached devices' network parameters so that they all belong to the same subnetwork. For example, you could configure the devices' IP addresses and netmasks as follows:

Port	IP Address	Netmask
1	192.168.127.1	255.255.0.0
2	192.168.127.2	255.255.0.0
…	…	…
8	192.168.127.8	255.255.0.0

ED6008 for connecting Ethernet-enabled devices to a LAN

This type of setup allows you to provide up to 7 Ethernet-enabled devices with the ability to communicate with other Ethernet devices connected to the same LAN. In this case, one of EDS's ports must be reserved for connecting to a Hub or switch that itself connects to the LAN. You will also need to check with the network administrator to determine what IP address and netmask to use for each of the devices connected to EDS's ports. As an example, assume the LAN does **not** use a DHCP Server, and is set up as a Class C network with IP addresses of the form 192.168.100.*xxx*. Assuming that EDS's port 8 is used to connect to the LAN, you could configure the devices' IP addresses and netmasks as follows, provided IP addresses 192.168.100.1 to 192.168.100.7 are not in use by other devices on the LAN:

Port	IP Address	Netmask
1	192.168.100.1	255.255.255.0
2	192.168.100.2	255.255.255.0
…	…	…
7	192.168.100.7	255.255.255.0
8	---	---

NOTE *If you are connecting MOXA EtherDevice Server to a public network, but do not intend to use its management functions over the network, then we suggest disabling both* ***Telnet Console*** *and* ***Web Configuration*** *from the RS-232 Console's* ***Advanced Settings*** → ***Server*** *page. See the "Advanced Settings" section from Chapter 6 for details.*

Redundant Ethernet Ring Quick Setup

Many users will want to make use of MOXA EtherDevice Server's **Redundant Ring Quick Setup** feature, which automatically establishes ports 7 and 8 as portals for communicating with other devices on the network also configured for Spanning Tree protocol. This means that when the quick setup feature is enabled, you should connect ports 7 and 8 *to the network* (instead of to a device). That is, these ports should connect to a HUB, switch, or another MOXA EtherDevice Server, provided the opposing device is connected to the rest of the network.

See the *Communication Redundancy* section from Chapter 6 for more information about EDS's Redundant Ring feature.

NOTE *We suggest not enabling the Spanning Tree Protocol once the port is connected to a device (PLC, RTU, etc.) as opposed to network equipment. The reason is that it will cause unnecessary negotiation.*

Basic Device Management

In addition to using MOXA EtherDevice Server's fast Ethernet switching ability, as described in the previous section, some users will also want to take advantage of some of EDS's basic management and monitoring functions. EDS functions that can be accessed over the LAN, after setting up EDS's IP address, or that can be accessed via EDS's Console port, include:

1. Monitor
2. Line-Swap fast recovery
3. Set device IP
4. Mirror port
5. Network segment integrity
6. Cable tester
7. Port/Server setup

To be able to access EDS's functions over the network (by Telnet or Web Browser) from a PC host that is connected to the same LAN as EDS, you need to make sure that the PC host and EDS are on the same logical subnetwork. To do this, check your PC host's IP address and netmask. By default, EDS's IP address is 192.168.127.253 and EDS's netmask is 255.255.0.0 (for a Class B network). If you do not change these values, and your PC host's netmask is 255.255.0.0, then its IP address must have the form 192.168.*xxx.xxx*. On the other hand, if your PC host's netmask is 255.255.255.0, then its IP address must have the form 192.168.127.*xxx*.

NOTE *To use EDS's management and monitoring functions from a PC host connected to the same LAN as EDS, you must make sure that the PC host and EDS are on the same logical subnetwork.*

Advanced Device Management

Some users will want to use MOXA EtherDevice Server's full range of management and monitoring functions. This not only includes such functions as Monitor, Auto Warning, Mirror Port, and Segment Integrity, mentioned in the previous section, but also Advanced EDS functions that allow you to configure EDS's own network parameters, and functions that let you assign IP addresses to connected devices, such as:

1. Auto warning (by e-mail)
2. DHCP
3. Communication Redundancy
4. SNMP

All of EDS's management and monitoring functions are discussed in detail in Chapter 6.

To be able to access EDS's functions over the network (by Telnet or Web Browser) from a PC host that is connected to the same LAN as EDS, you need to make sure that the PC host and EDS are on the same logical subnetwork. To do this, check your PC host's IP address and netmask. By default, EDS's IP address is 192.168.127.253 and EDS's netmask is 255.255.0.0 (for a Class B network). If you do not change these values, and your PC host's netmask is 255.255.0.0, then its IP address must have the form 192.168.*xxx*.*xxx*. On the other hand, if your PC host's netmask is 255.255.255.0, then its IP address must have the form 192.168.127.*xxx*. If your LAN connects to a WAN or the Internet by a router, then check with your network administrator to determine the IP address you should enter for EDS's Gateway setting.

NOTE *To use EDS's management and monitoring functions from a PC host connected to the same LAN as EDS, you must make sure that the PC host and EDS are on the same logical subnetwork.*

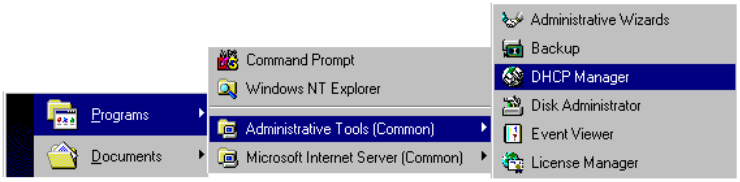
Another point to consider is whether or not EDS is connected to a DHCP network. In the next section, we explain how to configure your DHCP host to reserve a specific IP address for MOXA EtherDevice Server. By reserving a specific IP address, you will always be able to locate EDS by Telnet or Web Browser.

DHCP Server Configuration

This section applies if your MOXA EtherDevice Server is connected to a LAN that uses a DHCP Server to assign IP addresses to connected hosts. A DHCP server is set up to assign IP addresses to hosts as they log onto the network, so that if EDS is enabled as a DHCP client, then its IP address could change each time it is powered up. If you will need to access EDS's configuration and management functions over the network (by Telnet or web browser), it will be more convenient for you to assign EDS a fixed IP address. What we describe in this section is how to configure your DHCP Server to reserve an IP address for exclusive use by EDS. The configuration procedure requires knowing EDS's MAC address, which can be found on its product label.

STEP 1

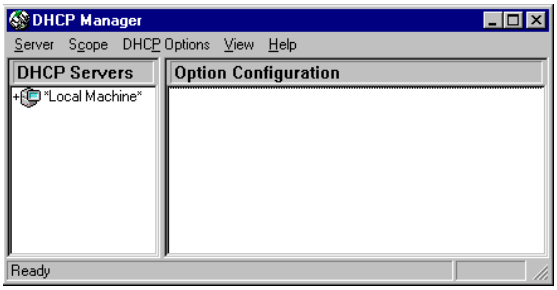
Access **DHCP Manager** from the Windows NT desktop by clicking on **Start → Programs → Administrative Tools → DHCP Manager**.



STEP 2

The left info box of the **DHCP Manager** window will show a list of DHCP hosts currently hooked up to the network.

Note that before you can make changes to the host's parameters, there must be a minus sign (–) located to the left of the server name (**Local Machine** in the example shown below.) If, as shown, there is a plus sign (+) to the left of the server name, use the left mouse button to click on the name of the host until the minus sign appears.



STEP 3

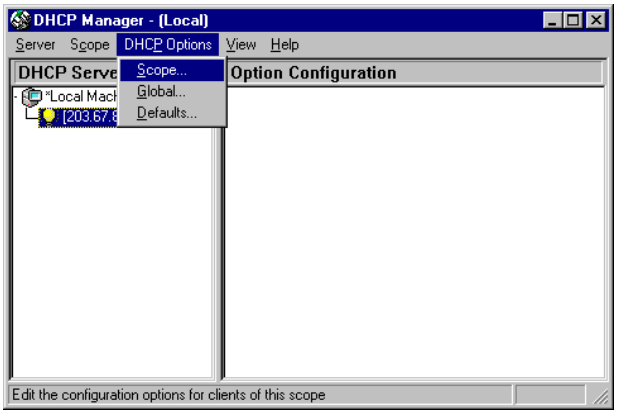
You must now define the DHCP server "scope."

A scope is a range of IP addresses that the server can choose from to assign to hosts as they log onto the network. Since the assignment is dynamic, the IP address assigned to a particular host can change each time the host logs in. What we will do is use DHCP Manager to set aside a specific IP address that will always be assigned to your MOXA EtherDevice Server when it is connected to the network. When EDS is not connected to the network, the reserved IP address is not used.

If you have already defined a scope, continue with STEP 10 below.

STEP 4

To get started, click on **DHCP Options** and then chose **Scope** from the pull down menu.



STEP 5

Once the **Create Scope (Local)** window opens (see below), you will be required to input a range of IP addresses in the IP Address Pool.

There is also an **Exclusion Range** used to prevent the DHCP Server from issuing addresses to existing devices that have already been assigned IP addresses from this range. By using the **Add** and **Remove** buttons, several different ranges can be excluded, and later included.

STEP 6

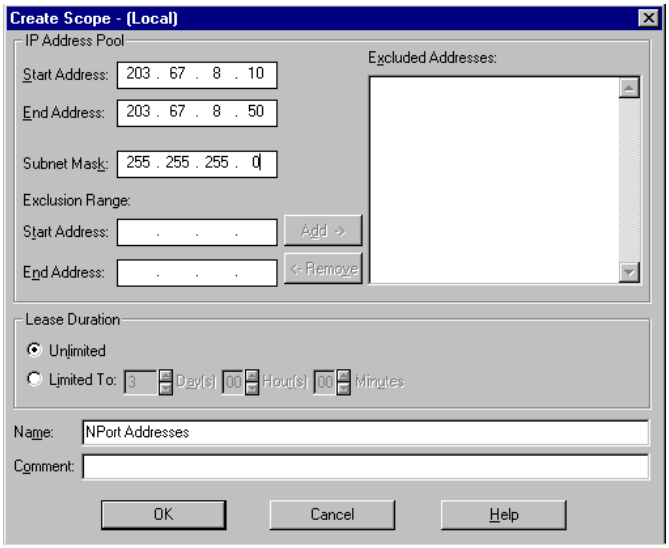
Another item that must be attended to is the **Subnet Mask**. This is a number that is combined with a device's IP address to determine which subnet the device belongs to. For a Class C address you should input 255.255.255.0, and for Class B addresses use 255.255.0.0.

STEP 7

Make sure the **Unlimited** option under **Lease Duration** is checked. This prevents the system from automatically disconnecting devices that are using IP addresses in the specified range.

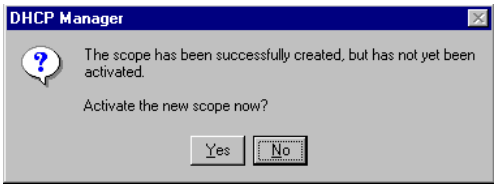
STEP 8

Assign a name to the scope, and if you like, include a comment. Click **OK** to accept the values.



STEP 9

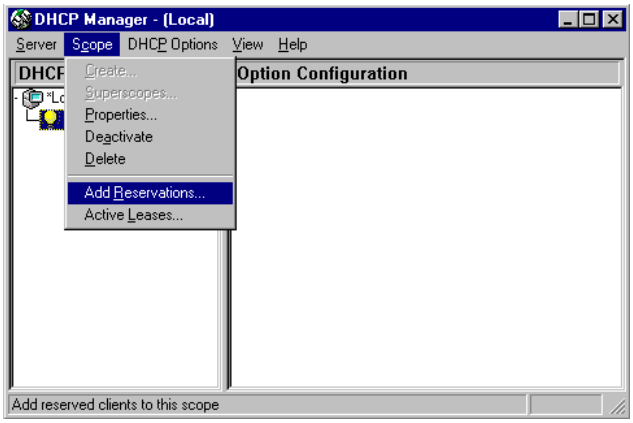
A window opens with the question: **Activate the new scope now?** Click on **Yes** to activate.



At this point we explain how to input a unique IP address reserved exclusively for use by your MOXA EtherDevice Server.

STEP 10

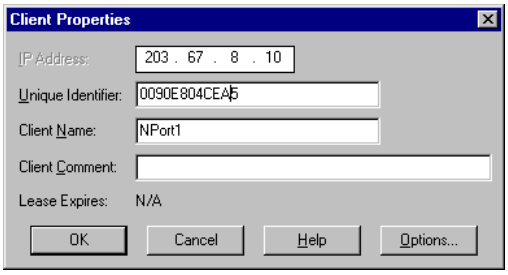
From the **DHCP Manager – (Local)** menu bar, click on **Scope**, and then select **Add Reservations**.



STEP 11

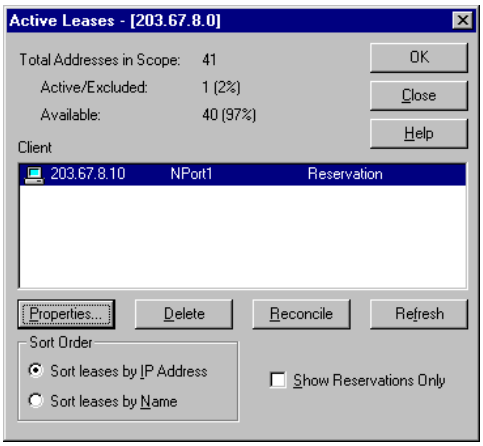
The **Client Properties** window that opens contains text input boxes for **IP address**, **Unique Identifier**, **Client Name**, and **Client Comment**. First enter the selected IP address, and then locate and enter your EDS's MAC address in the Unique Identifier field. (The MAC address is located on EDS's product label.)

Be sure to enter the same **Client Name** that was entered in the **Name** field of the **Create Scope - (Local)** window (see step 8 above). The **Client Comment** is optional. At this point you should double-check the MAC address and IP address, and then click **OK** to accept the values.



STEP 12

To check that the numbers just entered are correct, return to the DHCP Manager main window, click on **Scope**, and then choose **Active Leases** from the pull down menu. The IP address reserved for your MOXA EtherDevice Server will be displayed in the window that opens. Check to make sure that it is accurate.



6

Featured Functions

This chapter explains how to access MOXA EtherDevice Server's various configuration, monitoring, and administration functions. There are three ways to access these functions: serial console, Telnet console, and web browser. The serial console connection method, which requires using a short serial cable to connect MOXA EtherDevice Server to a PC's COM port, can be used if you do not know MOXA EtherDevice Server's IP address. The Telnet console and web browser connection methods can be used to access MOXA EtherDevice Server over an Ethernet LAN, or over the Internet.

The following topics are covered in this chapter:

- **Startup Procedure**
  - RS-232 Console (115200, None, 8, 1, VT100)
  - Telnet Console
  - Web Configuration
- **Monitor**
  - Console Monitor
  - Web Browser Monitor
- **Auto Warning**
  - Event Types
  - Test Email

(Chapter contents continued on following page)

- **Line-Swap Fast Recovery**
- **Communication Redundancy**
- **Assigning IP Addresses to Connected Devices**
- **Mirror Port**
- **Segment Integrity**
- **Cable Tester**
- **Advanced Settings**
  - Server
  - Port
  - Network
  - Factory Default
  - Upgrade Firmware by Console
  - Activate Settings

Startup Procedure

In this section, we explain how to access MOXA EtherDevice Server's RS-232 Console, Telnet Console, and Web Browser interfaces.

NOTE **Connection Note!**

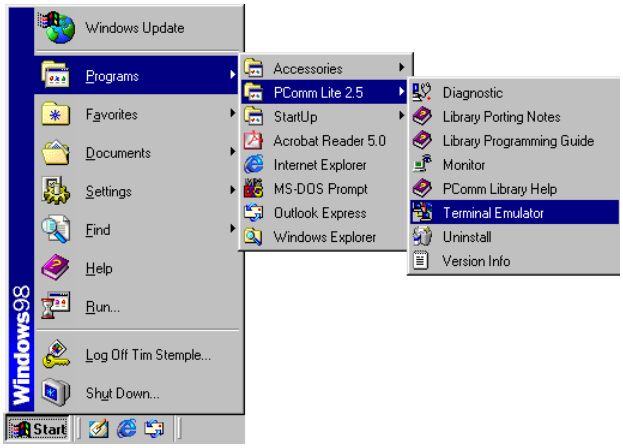
1. *You **cannot** connect to EDS simultaneously through the serial console and via Telnet.*
2. *You **can** connect to EDS simultaneously by web browser and serial console, or by web browser and via Telnet.*
3. *However, we recommend that when connecting to EDS by web browser, you do not simultaneously connect by either serial console or via Telnet.*
   By following this advice, you can maintain better control over how your MOXA EtherDevice Server is managed.

RS-232 Console (115200, None, 8, 1, VT100)

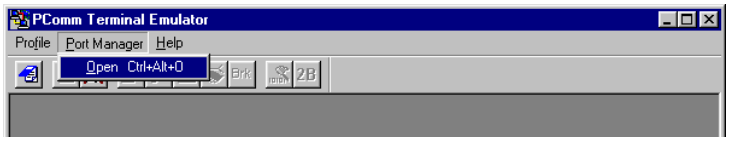
We recommend using MOXA PComm Terminal Emulator, which can be downloaded free of charge from Moxa's website. After installing PComm Terminal Emulator, take the following steps to access the RS-232 Console utility.

NOTE *Before running PComm Terminal Emulator, use an RJ45 to DB9-F (or RJ45 to DB25-F) cable to connect MOXA EtherDevice Server's RS-232 Console port to your PC's COM port (generally COM1 or COM2, depending on how your system is set up).*

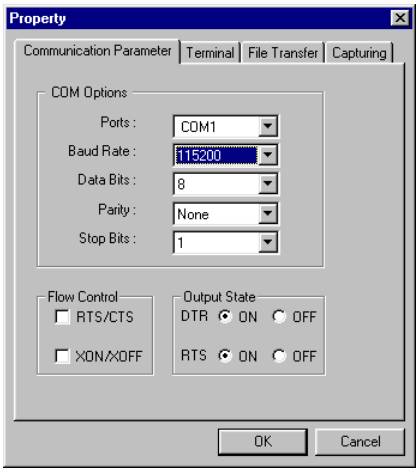
1. From the Windows desktop, click on **Start → Programs → PCommLite2.5 → Terminal Emulator**.



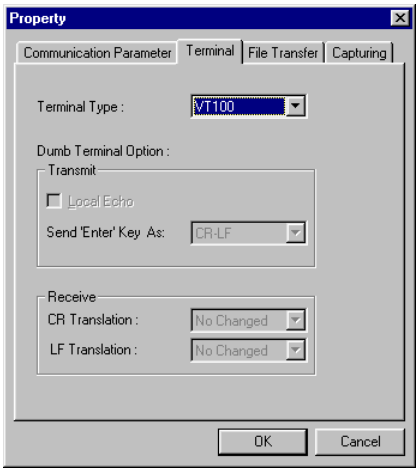
2. Select **Open** under **Port Manager** to open a new connection.



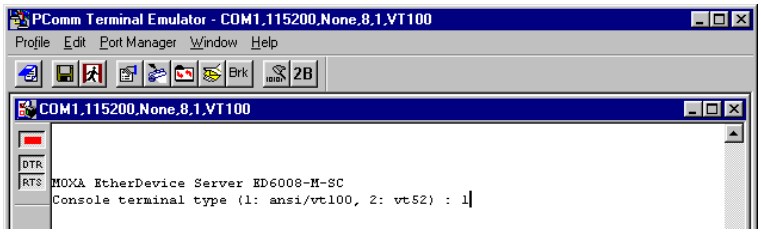
3. The **Communication Parameter** page of the **Property** window opens. Select the appropriate COM port for **Console Connection**, **115200** for **Baud Rate**, **8** for **Data Bits**, **None** for **Parity**, and **1** for **Stop Bits**.



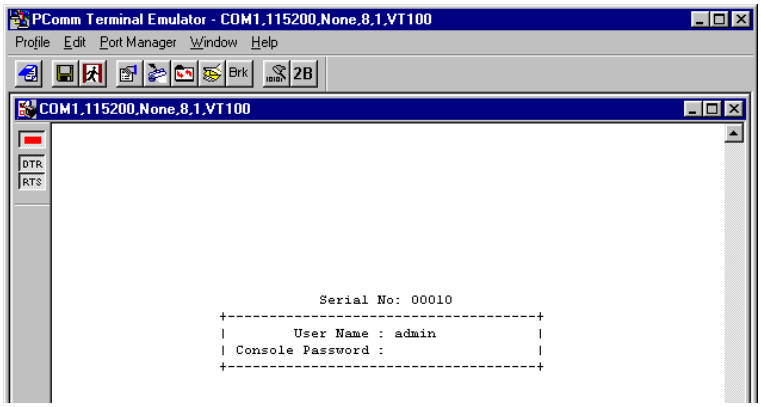
4. Click on the **Terminal** tab, and select **VT100** for **Terminal Type**. Click **OK** to confirm.



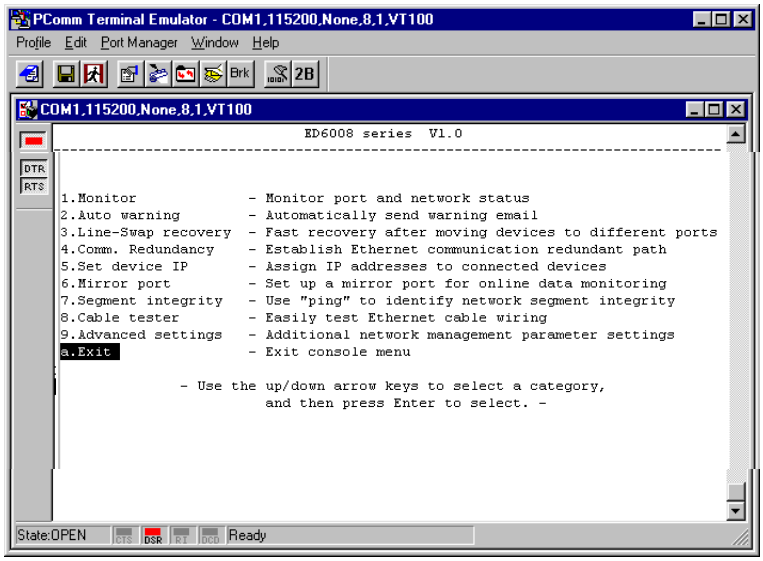
5. Type **1** to select **ansi/VT100** terminal type, and then press **Enter**.



6. If a password has been set for this device, the Console login screen will appear. Enter the **User Name** and **Console Password** (this is the same as the Web Browser password), and then press **Enter**.



7. MOXA EtherDevice Server's **Main Menu** will be displayed. (To modify the appearance of the PComm Terminal Emulator window, select **Font…** under the **Edit** menu, and then choose the desired formatting options.)


PComm Terminal Emulator - COM1,115200,None,8,1,VT100
Profile Edit Port Manager Window Help
COM1,115200,None,8,1,VT100
ED6008 series V1.0
1.Monitor - Monitor port and network status
2.Auto warning - Automatically send warning email
3.Line-Swap recovery - Fast recovery after moving devices to different ports
4.Comm. Redundancy - Establish Ethernet communication redundant path
5.Set device IP - Assign IP addresses to connected devices
6.Mirror port - Set up a mirror port for online data monitoring
7.Segment integrity - Use "ping" to identify network segment integrity
8.Cable tester - Easily test Ethernet cable wiring
9.Advanced settings - Additional network management parameter settings
a.Exit - Exit console menu
- Use the up/down arrow keys to select a category,
and then press Enter to select. -
State:OPEN
Ready

8. After entering the **Main Menu**, use the following keys to move the cursor, and to select options.

Key	Function
Up/Down/Left/Right arrows, or Tab	Move the onscreen cursor
Enter	Display & select options
Space	Toggle options
Esc	Previous Menu

Telnet Console

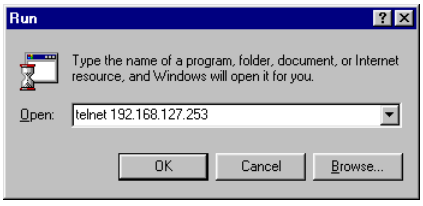
You may use Telnet to access MOXA EtherDevice Server's console utility over a network.

NOTE *Before accessing the console utility via Telnet, first connect one of MOXA EtherDevice Server's RJ45 Ethernet ports to your Ethernet LAN, or directly to your PC's Ethernet NIC. You should be able to establish a connection by using either a straight-through or cross-over Ethernet cable. However, if you experience connection difficulties, refer to the* Auto MDI/MDI-X Connection *section from* Chapter 4 *for more information about the different types of Ethernet cables and ports.*

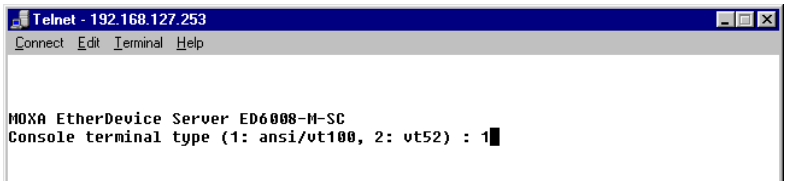
NOTE *MOXA EtherDevice Server's default IP is:* 192.168.127.253

Use the following procedure to access the console utility via Telnet.

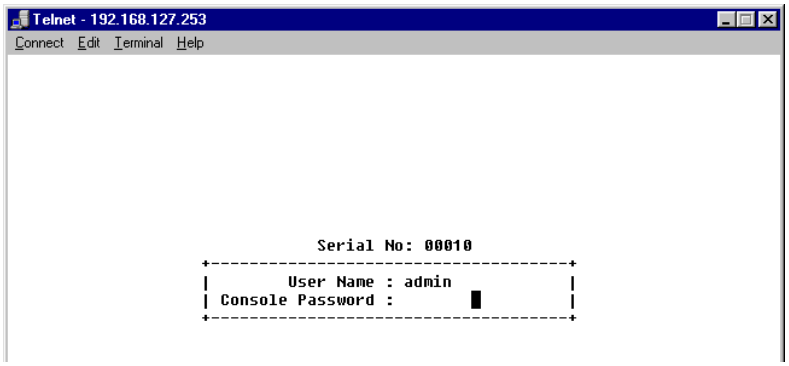
1. Telnet to MOXA EtherDevice Server's IP address from Window's **Run** window (or from the MS-DOS prompt).



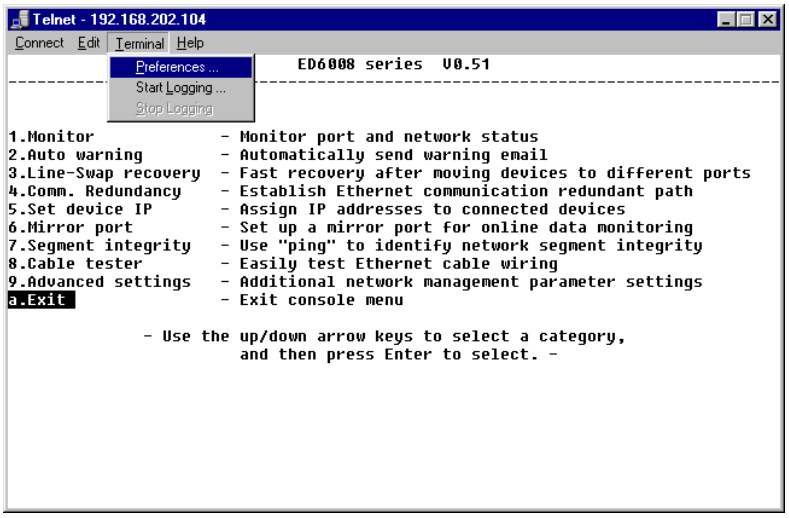
2. Type **1** to choose **ansi/vt100**, and then press **Enter**.


Telnet - 192.168.127.253
Connect Edit Terminal Help
MOXA EtherDevice Server ED6008-M-SC
Console terminal type (1: ansi/vt100, 2: vt52) : 1

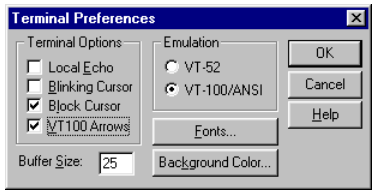
3. If a password has been set for this device, the Console login screen will appear. Enter the **User Name** and **Console Password** (this is the same as the Web Browser password), and then press **Enter**.



4. When MOXA EtherDevice Server's Main Menu opens, first select **Preferences…** under the **Terminal** menu.


Telnet - 192.168.202.104
Connect Edit Terminal Help
Preferences ...
Start Logging ...
Stop Logging
ED6008 series V0.51
1.Monitor - Monitor port and network status
2.Auto warning - Automatically send warning email
3.Line-Swap recovery - Fast recovery after moving devices to different ports
4.Comm. Redundancy - Establish Ethernet communication redundant path
5.Set device IP - Assign IP addresses to connected devices
6.Mirror port - Set up a mirror port for online data monitoring
7.Segment integrity - Use "ping" to identify network segment integrity
8.Cable tester - Easily test Ethernet cable wiring
9.Advanced settings - Additional network management parameter settings
a.Exit - Exit console menu
- Use the up/down arrow keys to select a category,
and then press Enter to select. -

5. When the **Terminal Preferences** window opens, check to make sure that the **VT100 Arrows** box is check-marked.



NOTE *The Telnet Console looks and operates in precisely the same manner as the RS-232 Console.*

Web Configuration

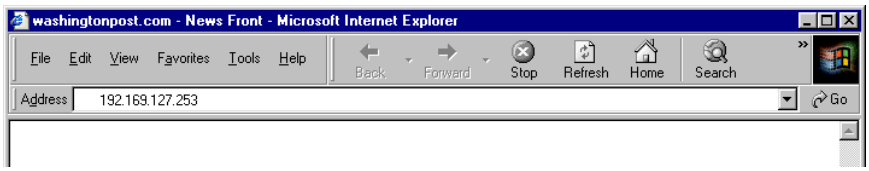
MOXA EtherDevice Server's web browser interface provides a convenient way to make modifications to its configuration, and to access the built-in monitoring and network administration functions. You may use either Internet Explorer or Netscape to access EDS.

NOTE *Before accessing MOXA EtherDevice Server's web browser interface, first connect one of MOXA EtherDevice Server's RJ45 Ethernet ports to your Ethernet LAN, or directly to your PC's Ethernet NIC. You should be able to establish a connection by using either a straight-through or cross-over Ethernet cable. However, if you experience difficulties, refer to the* Auto MDI/MDI-X Connection *section from* Chapter 4 *for more information.*

NOTE *MOXA EtherDevice Server's default IP is:* 192.168.127.253

Use the following procedure to access MOXA EtherDevice Server's web browser interface.

1. Start Internet Explorer, and then type MOXA EtherDevice Server's IP address in the **Address** field. Press **Enter** to establish the connection.

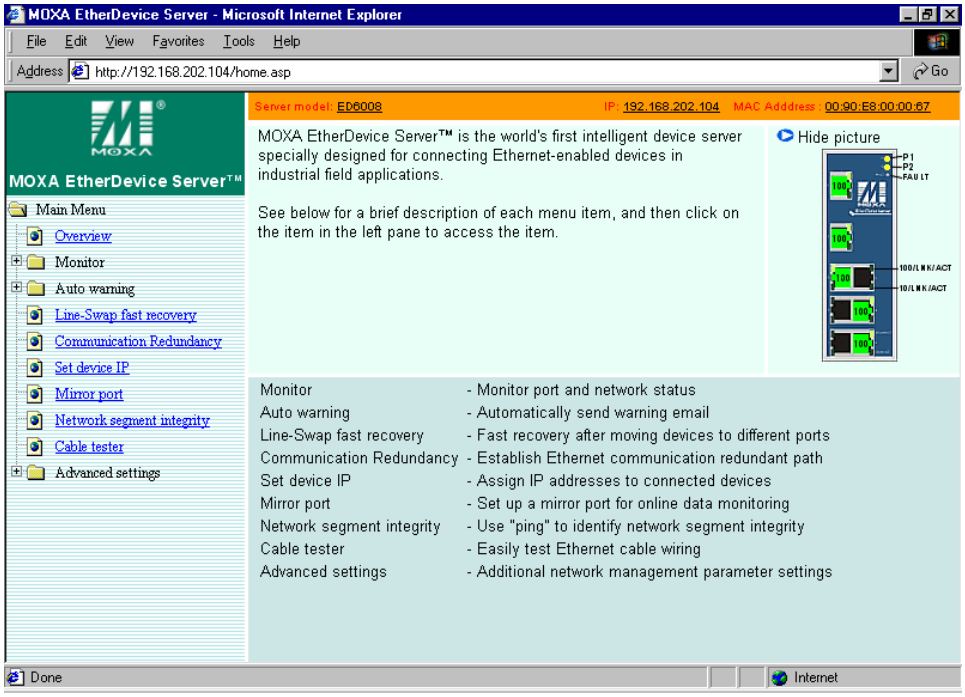

washingtonpost.com - News Front - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search
Address 192.169.127.253
Go

2. If a password has been set for this device, the Enter Network Password screen will appear. Enter the **User Name** and **Password** (this is the same as the Console password), and then click **OK**.

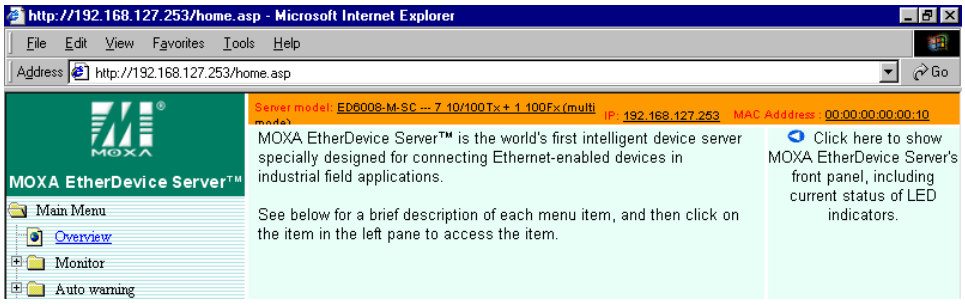
Enter Network Password
This secure Web Site (at 192.168.127.253) requires you to log on.
Please type the User Name and Password that you use for EtherDeviceServer.
User Name admin
Password
Save this password in your password list
OK
Cancel

NOTE *MOXA EtherDevice Server's default User Name is:* admin, *and by default, the Password is not set (i.e., is* blank*).*

You may need to wait a few moments while the web page is downloaded to your computer. Note that by default, a *real-time* image of MOXA EtherDevice Server's front panel, including active LEDs, is displayed in the upper right corner of the web page. To hide the image, and speed up the transmission of management and configuration commands, click on **Hide picture**, located just above the image.


MOXA EtherDevice Server - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Address http://192.168.202.104/home.asp
Go
Server model: ED6008
IP: 192.168.202.104
MAC Adddress : 00:90:E8:00:00:67
MOXA EtherDevice Server™
Main Menu
Overview
Monitor
Auto warning
Line-Swap fast recovery
Communication Redundancy
Set device IP
Mirror port
Network segment integrity
Cable tester
Advanced settings
MOXA EtherDevice Server™ is the world's first intelligent device server specially designed for connecting Ethernet-enabled devices in industrial field applications.
See below for a brief description of each menu item, and then click on the item in the left pane to access the item.
Hide picture
Monitor - Monitor port and network status
Auto warning - Automatically send warning email
Line-Swap fast recovery - Fast recovery after moving devices to different ports
Communication Redundancy - Establish Ethernet communication redundant path
Set device IP - Assign IP addresses to connected devices
Mirror port - Set up a mirror port for online data monitoring
Network segment integrity - Use "ping" to identify network segment integrity
Cable tester - Easily test Ethernet cable wiring
Advanced settings - Additional network management parameter settings
Done
Internet

3. The web page will appear as follows after reloading. To re-show the image of MOXA EtherDevice Server, click on **Click here to show…**.

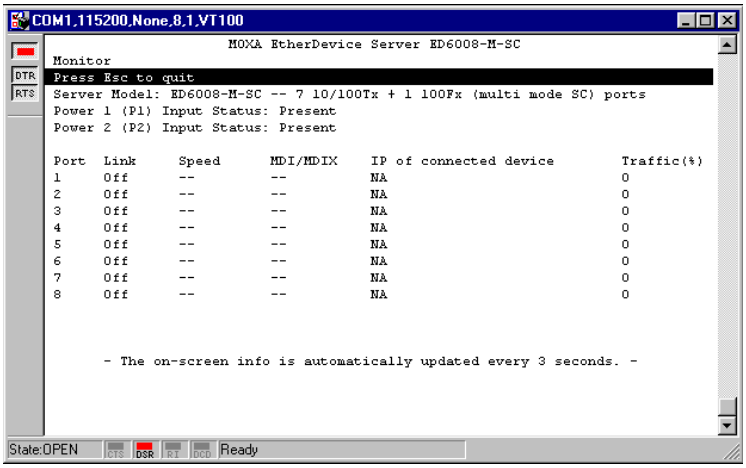

http://192.168.127.253/home.asp - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Address http://192.168.127.253/home.asp
Go
Server model: ED6008-M-SC --- 7 10/100Tx + 1 100Fx (multi
IP: 192.168.127.253
MAC Adddress : 00:00:00:00:00:10
MOXA EtherDevice Server™
Main Menu
Overview
Monitor
Auto warning
MOXA EtherDevice Server™ is the world's first intelligent device server specially designed for connecting Ethernet-enabled devices in industrial field applications.
See below for a brief description of each menu item, and then click on the item in the left pane to access the item.
Click here to show MOXA EtherDevice Server's front panel, including current status of LED indicators.

Monitor

The Console Monitor and Web Browser Monitor functions are somewhat different, so we describe them separately. In general, both functions allow you to view real-time data transmission activity, giving you the ability to analyze and monitor network activity.

Console Monitor

The Console Monitor function is accessed from either the RS-232 Console or Telnet Console. As you can see from the figure of the Console Monitor window shown below, important information about the status and activity of each port is displayed neatly in tabular form.


COM1,115200,None,8,1,VT100
MOXA EtherDevice Server ED6008-M-SC
Monitor
Press Esc to quit
Server Model: ED6008-M-SC -- 7 10/100Tx + 1 100Fx (multi mode SC) ports
Power 1 (P1) Input Status: Present
Power 2 (P2) Input Status: Present
Port Link Speed MDI/MDIX IP of connected device Traffic(%)
1 Off -- -- NA 0
2 Off -- -- NA 0
3 Off -- -- NA 0
4 Off -- -- NA 0
5 Off -- -- NA 0
6 Off -- -- NA 0
7 Off -- -- NA 0
8 Off -- -- NA 0
- The on-screen info is automatically updated every 3 seconds. -
DTR
RTS
State:OPEN
CTS
DSR
RI
DCD
Ready

Towards the top of the window, you can view the Server Model name, and basic information about the number and types of ports for that model. In addition, the following information is given for each of the ports:

Item	Description
Link	**On** means the port is connected to another active device. **Off** means that the port is disconnected.
Speed	Current data transmission speed
MDI/MDIX	Indicates whether the port is set up as an MDI or MDIX port
IP of connected device	IP address of the connected device (if applicable)
Traffic (%)	Percentage of the port's bandwidth currently being used by that port (e.g., if the port is set at 100 Mbps, and 15 Mb are transmitted during a particular second, then the Traffic=15%).

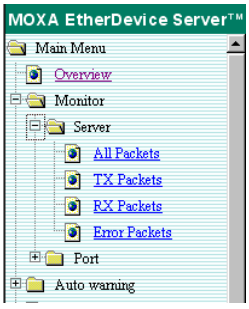
Note that the on-screen information is automatically updated every 3 seconds, giving you the ability to analyze data transmission flow through each port.

Web Browser Monitor

The Web Browser Monitor function is accessed by expanding the **Monitor** folder located in the web page's left pane. There are two options, **Server** and **Port**, discussed separately below.

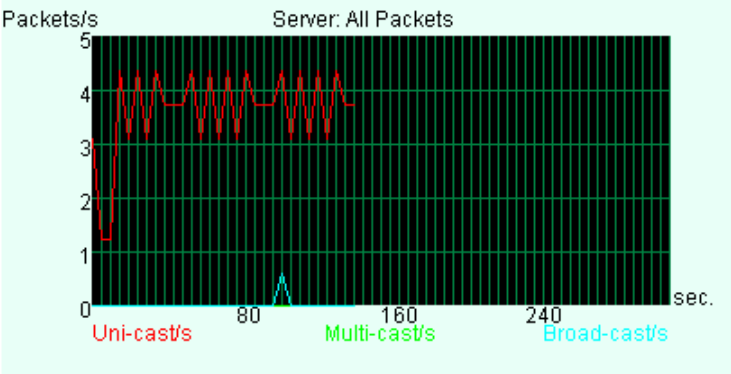
Monitor by Server

Access the Monitor by Server function by expanding the **Server** folder, as shown to the right. Monitor by Server allows the user to view a graph that shows the combined data transmission activity of all of MOXA EtherDevice Server's 8 ports. Click on one of the four options, **All Packets**, **TX Packets**, **RX Packets**, or **Error Packets**, to view transmission activity of specific types of packets.



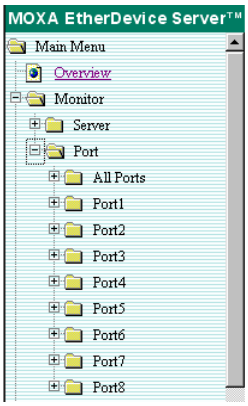
Recall that TX Packets are packets sent out from MOXA EtherDevice Server, RX Packets are packets received from connected devices, and Error Packets are packets that did not pass TCP/IP's error checking algorithm. The All Packets option displays a graph that combines TX, RX, and Error Packet activity.

The four graphs (All Packets, TX Packets, RX Packets, and Error Packets) have the same form, so we show here only the All Packets graph. The graph displays data transmission activity by showing **Packets/s** (i.e., packets per second, or pps) versus **sec.** (seconds). In fact, three curves are displayed on the same graph: **Uni-cast** packets (in red color), **Multi-cast** packets (in green color), and **Broad-cast** packets (in blue color). The graph is updated every few seconds, allowing the user to analyze data transmission activity in real-time.



Monitor by Port

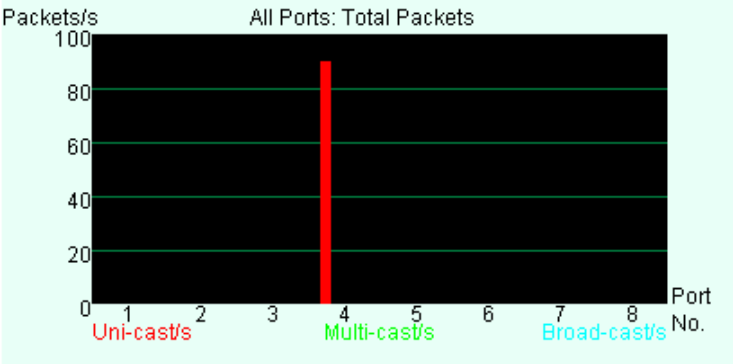
Access the Monitor by Port function by expanding the **Port** folder, as shown to the right. Monitor by Port has two options, **All Ports**, and **Port*i***, in which ***i*** = 1, 2, …, 8.



The **Port*i*** options are identical to the Monitor by Server function discussed above, in that users can view graphs that show All Packets, TX Packets, RX Packets, or Error Packets activity, but in this case, only for an individual port.

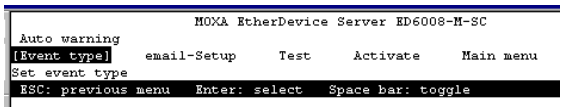
The **All Ports** option is essentially a graphical display of the individual port activity that can be viewed with the Console Monitor function discussed above. The All Ports option shows three vertical bars for each port. The height of the bar represents **Packets/s** for the type of packet, at the instant the bar is being viewed. That is, as time progresses, the height of the bar moves up or down so that the user can view the change in the rate of packet transmission. The red colored bar shows **Uni-cast** packets, the green colored bar shows

Multi-cast packets, and the blue colored bar shows **Broad-cast** packets. The graph is updated every few seconds, allowing the user to analyze data transmission activity in real-time.

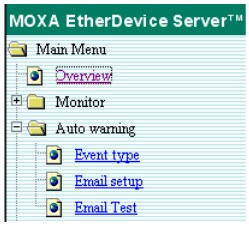


Auto Warning

The Auto Warning function uses e-mail to alert the user when certain user-configured events take place. The various Auto warning menu items can be accessed from either the Console utility, or Web Browser interface.



← Console **Auto warning** menu

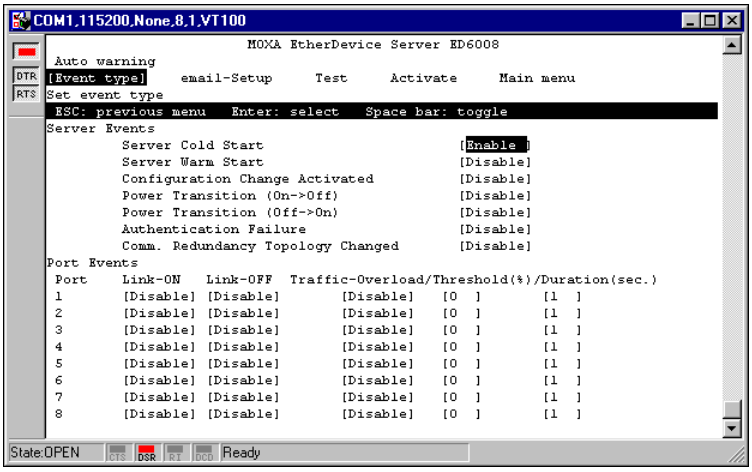


← Web Browser **Auto warning** menu

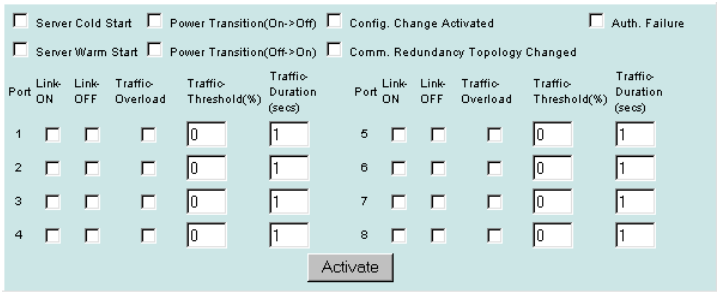
There are three basic steps required to set up the Auto Warning function:

STEP 1

Select the desired **Event types** from the Console or Web Browser Event type page. (A description of each event type is given later in the *Event Types* subsection.)


COM1,115200,None,8,1,VT100
MOXA EtherDevice Server ED6008
Auto warning
[Event type] email-Setup Test Activate Main menu
Set event type
ESC: previous menu Enter: select Space bar: toggle
Server Events
Server Cold Start [Enable]
Server Warm Start [Disable]
Configuration Change Activated [Disable]
Power Transition (On->Off) [Disable]
Power Transition (Off->On) [Disable]
Authentication Failure [Disable]
Comm. Redundancy Topology Changed [Disable]
Port Events
Port Link-ON Link-OFF Traffic-Overload/Threshold(%)/Duration(sec.)
1 [Disable] [Disable] [Disable] [0] [1]
2 [Disable] [Disable] [Disable] [0] [1]
3 [Disable] [Disable] [Disable] [0] [1]
4 [Disable] [Disable] [Disable] [0] [1]
5 [Disable] [Disable] [Disable] [0] [1]
6 [Disable] [Disable] [Disable] [0] [1]
7 [Disable] [Disable] [Disable] [0] [1]
8 [Disable] [Disable] [Disable] [0] [1]
State:OPEN
Ready

← Console **Event_type** configuration page

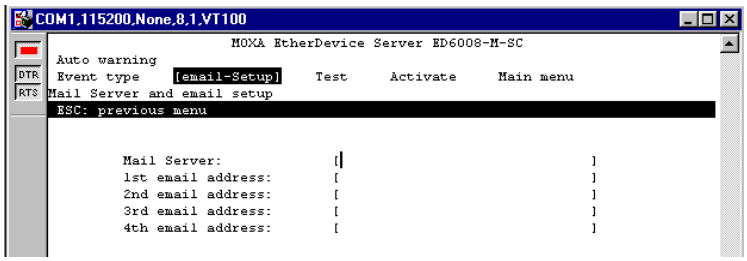


← Web Browser **Event Type** configuration panel

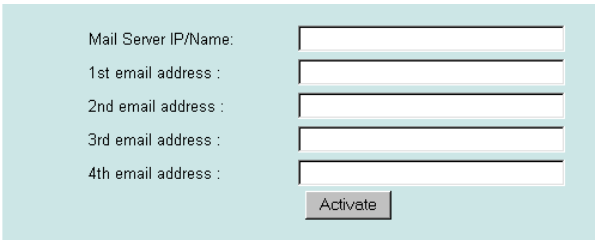
(Click on **Activate** before closing the window.)

STEP 2

Access the Email Setup page, and then type in the domain name or IP address of your e-mail server, and between one and four valid e-mail addresses.



← Console **email-Setup** configuration page



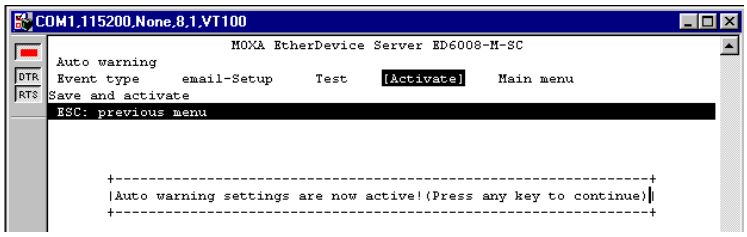
← Web Browser **Email Setup** configuration panel

(Click on **Activate** before closing the window.)

STEP 3

Activate your settings.

- When using the Web Browser interface, activate the settings by clicking on the **Activate** button—once from the **Event Type** page, and once from the **Email Setup** page.
- When using the Console utility, activate by first highlighting the **Activate** menu option, and then press **Enter**. You should receive the **Auto warning settings are now active! (Press any key to continue)** message.



NOTE *Warning e-mail messages will have **sender** given in the form:*

Moxa_EtherDevice_Server_0001@Server_Location

*where **Moxa_EtherDevice_Server** is the default Server Name, **0001** is EDS's serial number, and **Server_Location** is the default Server Location.*

*Refer to the **Advanced Settings** section from Chapter 6 to see how to modify Server Name and Server Location.*

Event Types

Event Types can be divided into two basic groups: **Server Events** and **Port Events**. Server Events are related to the overall function of the Server, whereas Port Events are related to the activity of a specific port.

Server Event	Warning e-mail is sent when…
Server Cold Start	Power is cut off and then reconnected.
Server Warm Start	EDS is rebooted, such as when network parameters are changed (IP address, netmask, etc.).
Power Transition (On→Off)	EDS is powered up.
Power Transition (Off→On)	EDS is powered down.
Configuration Change Activated	Any configuration item is changed.
Comm. Redundancy Topology Changed	If any Spanning Tree Protocol servers have changed their position (applies only to the root of the tree).
Authentication Failure	An incorrect password is entered.

Port Event	Warning e-mail is sent when…
Link-on	The port is connected to another device.
Link-off	The port is disconnected (e.g., the cable is pulled out, or the opposing device shuts down).
Traffic-Overload	The port's traffic surpasses the Traffic-Threshold for that port (provided this item is Enabled).
Traffic-Threshold (%)	Enter a nonzero number if the port's Traffic-Overload item is Enabled.
Traffic-Duration (secs)	A Traffic-Overload warning is sent every *Traffic-Duration* seconds if the average Traffic-Threshold is surpassed during that time period.

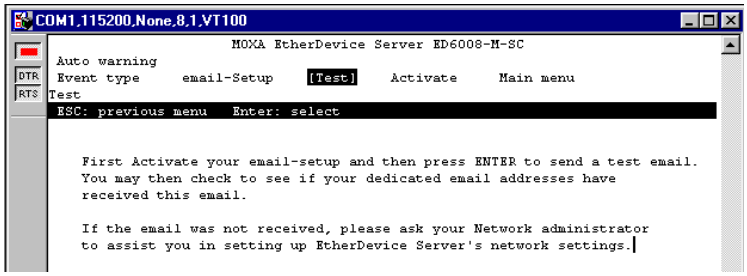
NOTE *The **Traffic-Overload**, **Traffic-Threshold (%)**, and **Traffic-Duration (secs)** Port Event items are related. If you Enable the Traffic-Overload event, then be sure to enter a nonzero Traffic-Threshold percentage, as well as a Traffic-Duration between 1 and 300 seconds.*

Test Email

After configuring and activating your MOXA EtherDevice Server's Event Types and Email Setup, you can use the **Test Email** function to see if your e-mail addresses and mail server address have been properly configured.

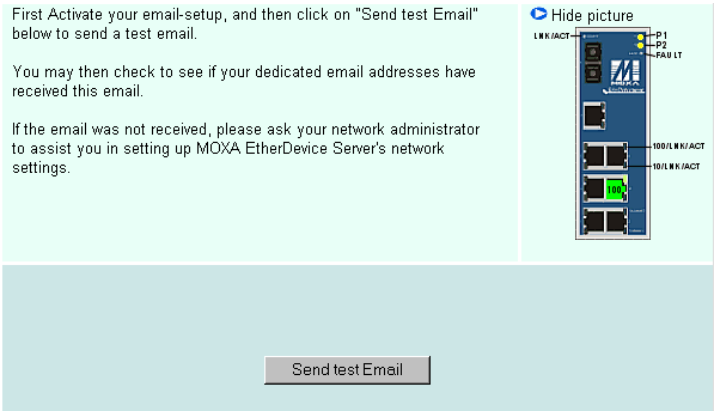
Console Test

Test your email setup from the Console utility's Auto warning **Test** menu.


COM1,115200,None,8,1,VT100
MOXA EtherDevice Server ED6008-M-SC
Auto warning
Event type
email-Setup
[Test]
Activate
Main menu
Test
ESC: previous menu
Enter: select
First Activate your email-setup and then press ENTER to send a test email.
You may then check to see if your dedicated email addresses have
received this email.
If the email was not received, please ask your Network administrator
to assist you in setting up EtherDevice Server's network settings.

Browser Test

Test your email setup from the Web Browser utility's **Email Test** page, by clicking on **Send test Email**.

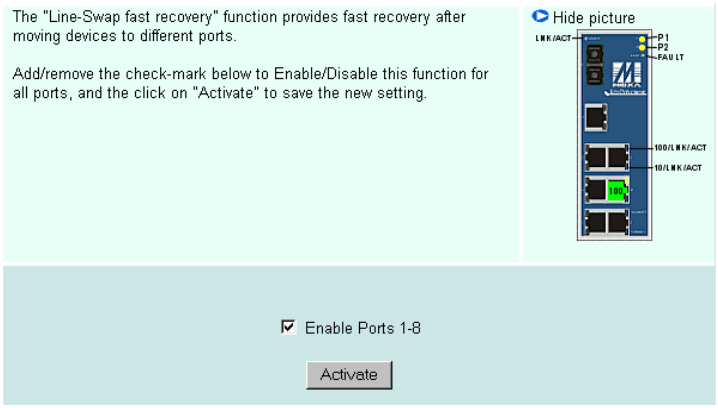

First Activate your email-setup, and then click on "Send test Email" below to send a test email.
You may then check to see if your dedicated email addresses have received this email.
If the email was not received, please ask your network administrator to assist you in setting up MOXA EtherDevice Server's network settings.
Hide picture
LNK/ACT
P1
P2
FAULT
100/LNK/ACT
10/LNK/ACT
Send test Email

Line-Swap Fast Recovery

The Line-Swap Fast Recovery function, which is enabled by default, allows MOXA EtherDevice Server to return to normal operation extremely quickly after devices are unplugged and then re-plugged into different ports. The recovery time is on the order of a few milliseconds. Compare this with standard commercial switches for which the recovery time could be on the order of several minutes.

To disable the Line-Swap Fast Recovery function, or to re-enable the function after it has already been disabled, access either the Console utility's **Line-Swap recovery** page, or the Web Browser interface's **Line-Swap fast recovery** page, as shown below.

← Console **Line-Swap recovery** configuration page


The "Line-Swap fast recovery" function provides fast recovery after moving devices to different ports.
Add/remove the check-mark below to Enable/Disable this function for all ports, and the click on "Activate" to save the new setting.
Hide picture
Enable Ports 1-8
Activate

← Web Browser **Line-Swap fast recovery** configuration panel

(Click on **Activate** before closing the window.)

Be sure to activate your setting before exiting.

- When using the Web Browser interface, activate by clicking on the **Activate** button.
- When using the Console utility, activate by first highlighting the **Activate** menu option, and then press **Enter**. You should receive the **Line-Swap recovery settings are now active! (Press any key to continue)** message.

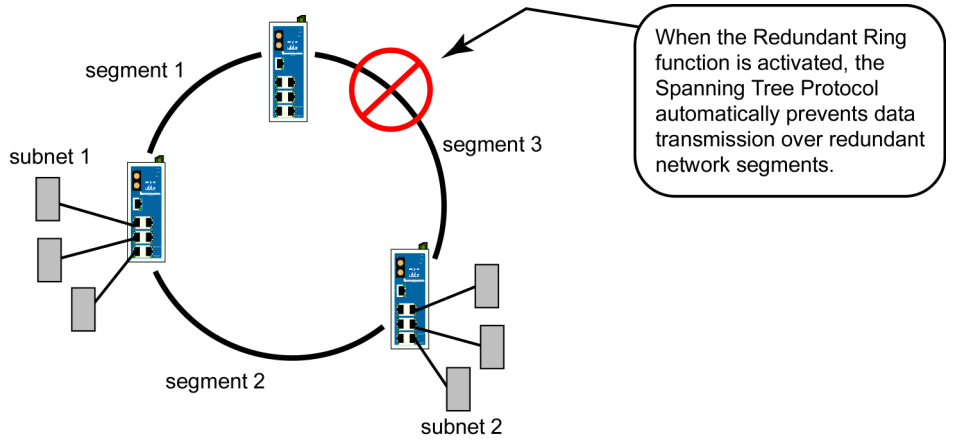
Communication Redundancy

The Communication Redundancy function allows the user to set up *redundant loops* in the network to provide a backup data transmission route in the event that a cable is inadvertently disconnected or damaged. This is a particularly important feature for industrial applications, since it could take several minutes to locate the disconnected or severed cable. For example, if MOXA EtherDevice Server is used as a key communications component of a production line, several minutes of downtime could cause a big loss in production and revenue.

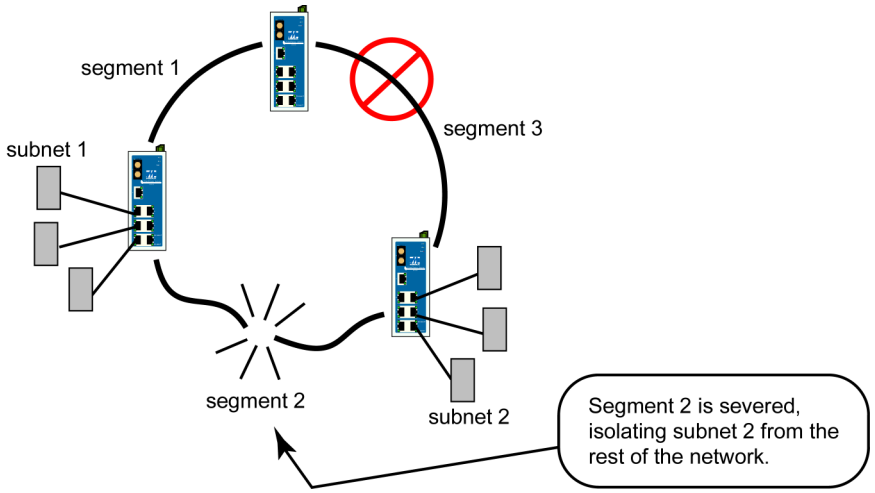
The Communication Redundancy function uses Spanning Tree protocol to identify one switch as the "root" of the network, and then automatically blocks packets from traveling through any of the network's redundant loops. In the event that one branch of this tree becomes disconnected from the rest of the network, the Spanning Tree protocol automatically readjusts the tree (if possible) so that the part of the network that was disconnected can reestablish contact with the rest of the network.

Perhaps the main advantage to using Spanning Tree protocol (IEEE802.1D) to manage redundant loops is that it is an open protocol, and consequently is compatible with products from other manufacturers (Cisco, for example) that use Spanning Tree protocol.

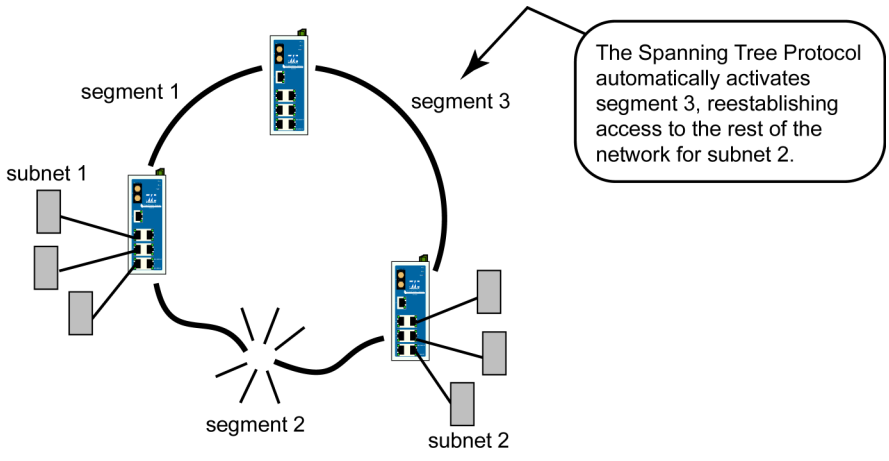
Initial Setup


segment 1
subnet 1
segment 3
segment 2
subnet 2
When the Redundant Ring function is activated, the Spanning Tree Protocol automatically prevents data transmission over redundant network segments.

Network mishap isolates part of the network



Spanning Tree saves the day!

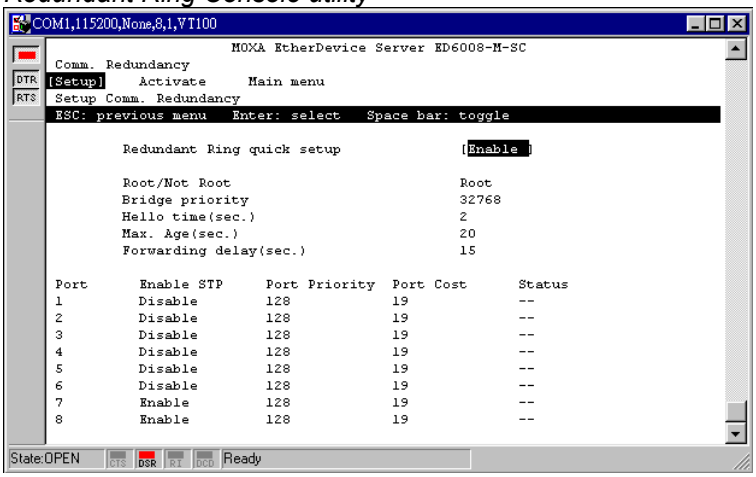

segment 1
segment 3
The Spanning Tree Protocol automatically activates segment 3, reestablishing access to the rest of the network for subnet 2.
subnet 1
segment 2
subnet 2

NOTE *We suggest not enabling the Spanning Tree Protocol once the port is connected to a device (PLC, RTU, etc.) as opposed to network equipment. The reason is that it will cause unnecessary negotiation.*

Redundant Ring Quick Setup

Most users will use MOXA EtherDevice Server's **Redundant Ring Quick Setup** feature, which automatically establishes ports 7 and 8 as portals for communicating with other devices on the network also configured for Spanning Tree protocol. This means that when the quick setup feature is enabled, you should connect ports 7 and 8 *to the network* (instead of to a device). That is, these ports should connect to a HUB, switch, or another MOXA EtherDevice Server, provided the opposing device is connected to the rest of the network.

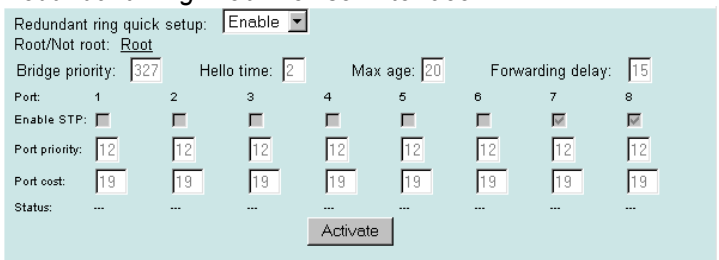
Redundant Ring Console utility


COM1,115200,None,8,1,VT100
MOXA EtherDevice Server ED6008-M-SC
Comm. Redundancy
[Setup] Activate Main menu
Setup Comm. Redundancy
ESC: previous menu Enter: select Space bar: toggle
Redundant Ring quick setup [Enable]
Root/Not Root Root
Bridge priority 32768
Hello time(sec.) 2
Max. Age(sec.) 20
Forwarding delay(sec.) 15
Port Enable STP Port Priority Port Cost Status
1 Disable 128 19 --
2 Disable 128 19 --
3 Disable 128 19 --
4 Disable 128 19 --
5 Disable 128 19 --
6 Disable 128 19 --
7 Enable 128 19 --
8 Enable 128 19 --
State:OPEN
Ready

← **Enable** quick setup

← remaining items are configured automatically

Redundant Ring Web Browser interface


Redundant ring quick setup: Enable
Root/Not root: Root
Bridge priority: 327 Hello time: 2 Max age: 20 Forwarding delay: 15
Port: 1 2 3 4 5 6 7 8
Enable STP:
Port priority: 12 12 12 12 12 12 12 12
Port cost: 19 19 19 19 19 19 19 19
Status: --- --- --- --- --- --- --- ---
Activate

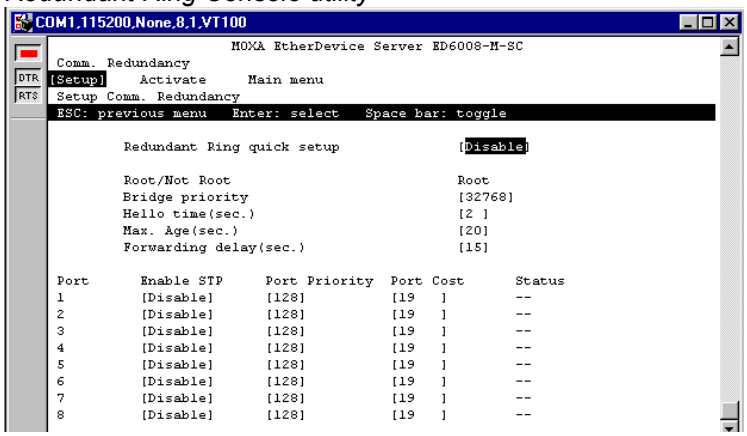
← **Enable** quick setup

← remaining items are configured automatically

Redundant Ring Detailed Setup

To have full control over all of the Communication Redundancy function's configuration items, simply disable quick setup. You will then be able to configure the remaining items, which are described below in more detail.

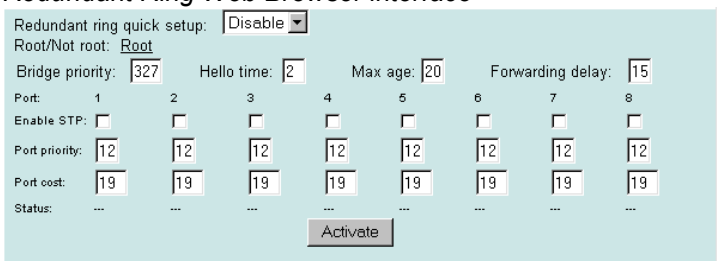
Redundant Ring Console utility


COM1,115200,None,8,1,VT100
MOXA EtherDevice Server ED6008-M-SC
Comm. Redundancy
[Setup] Activate Main menu
Setup Comm. Redundancy
ESC: previous menu Enter: select Space bar: toggle
Redundant Ring quick setup [Disable]
Root/Not Root Root
Bridge priority [32768]
Hello time(sec.) [2]
Max. Age(sec.) [20]
Forwarding delay(sec.) [15]
Port Enable STP Port Priority Port Cost Status
1 [Disable] [128] [19] --
2 [Disable] [128] [19] --
3 [Disable] [128] [19] --
4 [Disable] [128] [19] --
5 [Disable] [128] [19] --
6 [Disable] [128] [19] --
7 [Disable] [128] [19] --
8 [Disable] [128] [19] --

← **Disable** quick setup

← remaining items are configured by user

Redundant Ring Web Browser interface


Redundant ring quick setup: Disable
Root/Not root: Root
Bridge priority: 327 Hello time: 2 Max age: 20 Forwarding delay: 15
Port: 1 2 3 4 5 6 7 8
Enable STP:
Port priority: 12 12 12 12 12 12 12 12
Port cost: 19 19 19 19 19 19 19 19
Status: --- --- --- --- --- --- --- ---
Activate

← **Disable** quick setup

← remaining items are configured by user

Redundant Ring Configuration Items

Configuration Item	Description
Root/Not Root	Indicates if this device is or is not the Root of the Spanning Tree (the root is determined automatically).
Bridge priority	Increase this device's bridge priority by inputting a *lower* number. A device with a higher bridge priority has a greater chance of being established as the root of the Spanning Tree topology.
Hello time (sec.)	The root of the Spanning Tree topology periodically sends out a "hello" message to other devices on the network to check if the topology is healthy. The "hello time" is the amount of time the root waits between sending hello messages (see below for further explanation).
Max. Age (sec.)	If this device is not the root, and it has not received a hello message from the root in an amount of time equal to "Max. Age," then this device will reconfigure itself as a root. Once two or more devices on the network are recognized as a root, the devices will renegotiate to set up a new Spanning Tree topology (see below for further explanation).
Forwarding delay (sec.)	The amount of time this device waits before checking to see if it should change to a different state (see below for further explanation).
Enable STP	Enable or Disable the port as a node on the Spanning Tree topology.
Port Priority	Increase this port's priority as a node on the Spanning Tree topology by inputting a *lower* number.
Port Cost	Input a higher cost to indicate that this port is less suitable as a node for the Spanning Tree topology.
Status	Indicates the current Spanning Tree status of this port.

Configuration Limits

We should point out that the Spanning Tree Algorithm places certain limits on three of the configuration items described above:

[Eq. 1]: 1 sec $\leqq$ Hello Time $\leqq$ 10 sec

[Eq. 2]: 6 sec $\leqq$ Max. Age $\leqq$ 40 sec

[Eq. 3]: 4 sec $\leqq$ Forwarding Delay $\leqq$ 30 sec

These three variables are further restricted by the following two inequalities:

[Eq. 4]: 2 * (Hello Time – 1 sec) $\leqq$ Max. Age $\leqq$ 2 * (Forwarding Delay – 1 sec)

MOXA EtherDevice Server's firmware will alert you immediately if any of these restrictions are violated. For example, setting

Hello Time = 5 sec, Max. Age = 20 sec, and Forwarding Delay = 4 sec does not violate Eqs. 1 through 3, but does violate Eq. 4, since in this case,

2 * (Hello Time – 1 sec) = 8 sec, and 2 * (Forwarding Delay – 1 sec) = 6 sec.

You can remedy the situation in any number of ways. One solution is to simply increase the Forwarding Delay value to at least 11 sec.

NOTE *If you Enable "Redundant Ring quick setup" and then later Disable it, you must Disable STP for ports 7 and 8 to disable this device as a Spanning Tree node.*

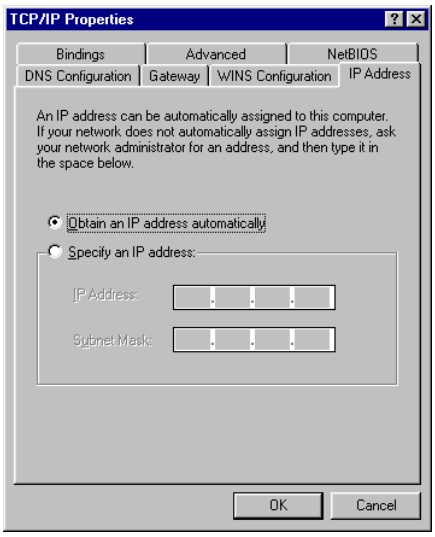
Assigning IP Addresses to Connected Devices

When enabled, the **Set device IP** function allows MOXA EtherDevice Server to automatically assign specific IP addresses to connected devices that are equipped with *DHCP Client* or *RARP* protocol. In effect, MOXA EtherDevice Server acts as a DHCP server by assigning a connected device with a specific IP address stored in MOXA EtherDevice Server's internal memory. Each time the connected device is switched on or rebooted, MOXA EtherDevice Server sends the device the desired IP address.

Take the following steps to use the **Set device IP** function:

STEP 1—*set up the connected devices*

Set up the Ethernet-enabled devices connected to MOXA EtherDevice Server for which you would like the IP addresses to be assigned automatically. The devices must be configured to *obtain* their IP address automatically.


TCP/IP Properties
Bindings
Advanced
NetBIOS
DNS Configuration
Gateway
WINS Configuration
IP Address
An IP address can be automatically assigned to this computer. If your network does not automatically assign IP addresses, ask your network administrator for an address, and then type it in the space below.
Obtain an IP address automatically
Specify an IP address:
IP Address:
Subnet Mask:
OK
Cancel

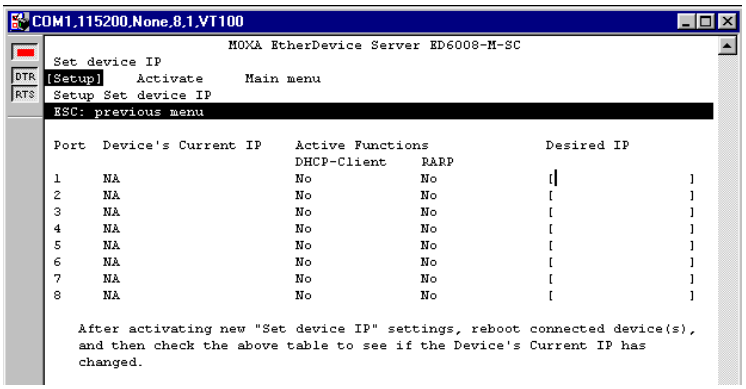
The devices' configuration utility should include a setup page that allows you to choose an option similar to **Obtain an IP address automatically**.

For example, Windows' **TCP/IP Properties** window is shown at the right. Although your device's configuration utility may look quite a bit different, this figure should give you some idea of what to look for.

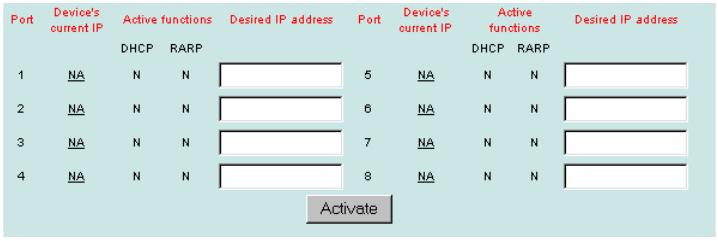
You also need to decide which of MOXA EtherDevice Server's ports your Ethernet-enabled devices will be connected to. You will need to set up each of these ports separately, as described in the following step.

STEP 2

Configure MOXA EtherDevice Server's **Set device IP** function, either from the Console utility or from the Web Browser interface. In either case, you simply need to enter the **Desired IP** for each port that needs to be configured.


COM1,115200,None,8,1,VT100
MOXA EtherDevice Server ED6008-M-SC
Set device IP
[Setup] Activate Main menu
Setup Set device IP
ESC: previous menu
Port Device's Current IP Active Functions Desired IP
DHCP-Client RARP
1 NA No No [ ]
2 NA No No [ ]
3 NA No No [ ]
4 NA No No [ ]
5 NA No No [ ]
6 NA No No [ ]
7 NA No No [ ]
8 NA No No [ ]
After activating new "Set device IP" settings, reboot connected device(s), and then check the above table to see if the Device's Current IP has changed.

← Console **Set device IP** configuration page



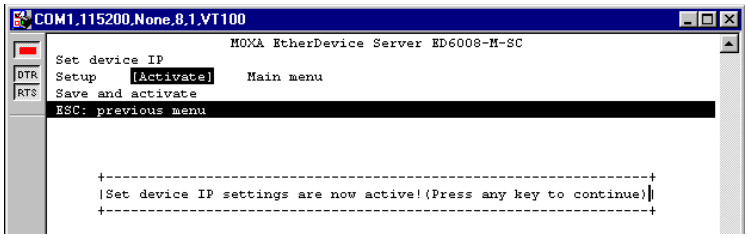
← Web Browser **Set device IP** configuration panel

(Click on **Activate** before closing the window.)

STEP 3

Be sure to activate your settings before exiting.

- When using the Web Browser interface, activate by clicking on the **Activate** button.
- When using the Console utility, activate by first highlighting the **Activate** menu option, and then press **Enter**. You should receive the **Set device IP settings are now active! (Press any key to continue)** message.


COM1,115200,None,8,1,VT100
MOXA EtherDevice Server ED6008-M-SC
Set device IP
Setup [Activate] Main menu
Save and activate
ESC: previous menu
Set device IP settings are now active!(Press any key to continue)

Mirror Port

The **Mirror port** function can be used to monitor data being transmitted through a specific port. This is done by setting up another port (the *mirror port*) to receive the same data being transmitted to, from, or both to and from, the port under observation. This allows the network administrator to "sniff" the observed port and thus keep tabs on network activity.

Take the following steps to set up the **Mirror Port** function:

STEP 1

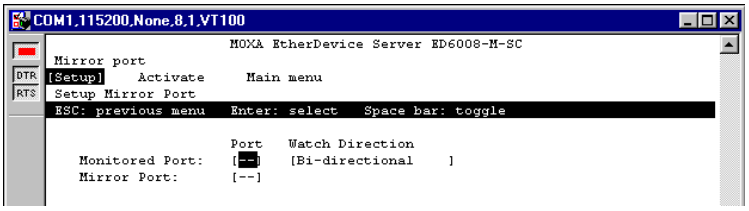
Configure MOXA EtherDevice Server's **Mirror Port** function from either the Console utility or Web Browser interface. You will need to configure three settings:

Monitored Port Select the port number of the port whose network activity will be monitored.

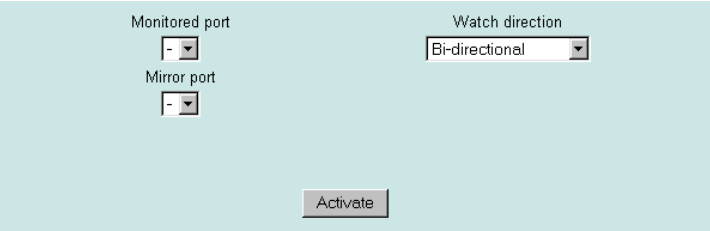
Mirror Port Select the port number of the port that will be used to monitor the activity of the monitored port.

Watch Direction Select one of the following three watch direction options:

- **Input data stream**
  Select this option to monitor only those data packets coming *into* MOXA EtherDevice Server's port from an external connection.
- **Output data stream**
  Select this option to monitor only those data packets being sent *out through* MOXA EtherDevice Server's port.
- **Bi-directional**
  Select this option to monitor data packets both coming *into*, and being sent *out through*, MOXA EtherDevice Server's port.



← Console **Mirror port** configuration page



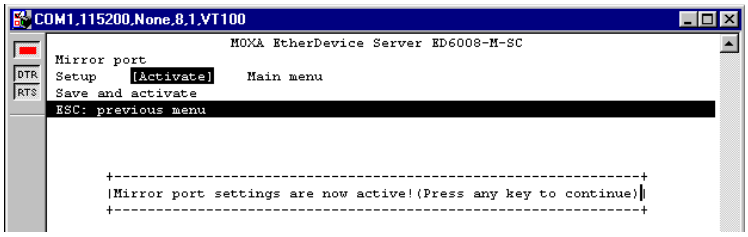
← Web Browser **Mirror port** configuration panel

(Click on **Activate** before closing the window.)

STEP 2

Be sure to activate your settings before exiting.

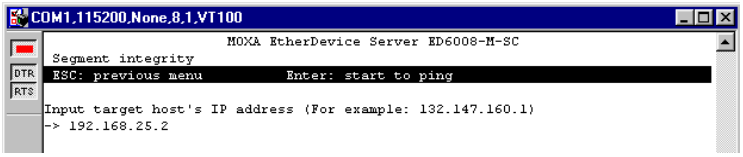
- When using the Web Browser interface, activate by clicking on the **Activate** button.
- When using the Console utility, activate by first highlighting the **Activate** menu option, and then press **Enter**. You should receive the **Mirror port settings are now active! (Press any key to continue)** message.



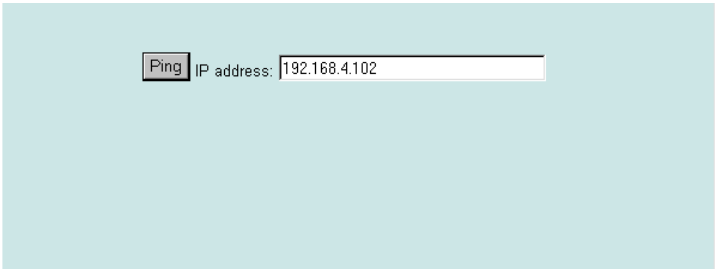
Segment Integrity

The **Segment Integrity** function uses the *ping* command to give users a simple but powerful tool for troubleshooting network problems. The function's most unique feature is that even though the ping command is entered from the user's PC keyboard, the actual ping command originates from MOXA EtherDevice Server itself. In this way, the user can essentially "sit on top of MOXA EtherDevice Server" and send ping commands out through its ports.

To use the Segment Integrity function, type in the desired IP address, and then press **Enter** from the Console utility, or click on **Ping** when using the Web Browser interface.



← Console **Segment integrity** configuration page



← Web Browser **Segment Integrity** configuration panel

(Click on **Activate** before closing the window.)

Cable Tester

The **Cable tester** function gives you a quick way to test an Ethernet cable to determine if it is a *straight-through* cable, *cross-over* cable, or *is not wired correctly or has a short*. The Cable tester function works by isolating ports 1 and 2 from the rest of MOXA EtherDevice Server's ports. For this reason, you should first check that ports 1 and 2 are not in use before testing an Ethernet cable.

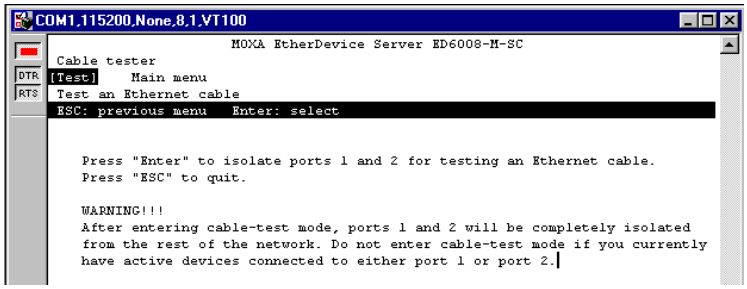
ATTENTION

*Before entering **cable-test mode**, check to make sure that ports 1 and 2 are not in use. After entering cable-test mode, ports 1 and 2 will be completely isolated from the rest of the network. Do not enter cable-test mode if you currently have active devices connected to ports 1 or 2.*

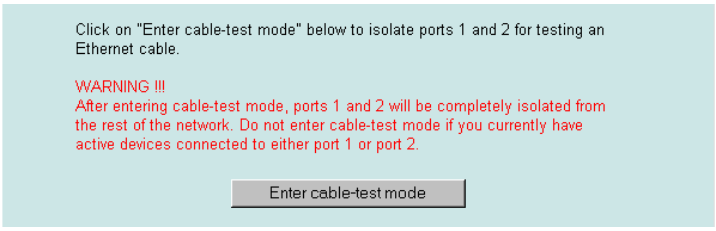
The **Cable tester** function can be accessed from either the Console utility, or from the Web Browser interface. Take the following steps to use the **Cable tester** function:

STEP 1

Enter Cable-test mode.


COM1,115200,None,8,1,VT100
MOXA EtherDevice Server ED6008-M-SC
Cable tester
[Test] Main menu
Test an Ethernet cable
ESC: previous menu Enter: select
Press "Enter" to isolate ports 1 and 2 for testing an Ethernet cable.
Press "ESC" to quit.
WARNING!!!
After entering cable-test mode, ports 1 and 2 will be completely isolated from the rest of the network. Do not enter cable-test mode if you currently have active devices connected to either port 1 or port 2.

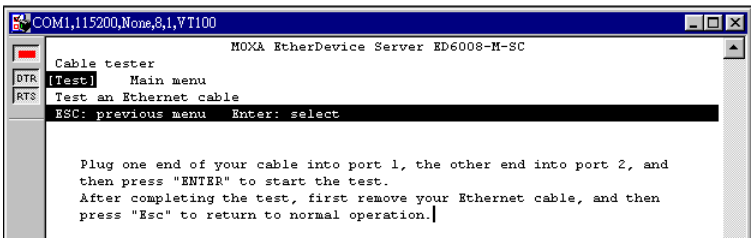
← Console **Cable tester** page


Click on "Enter cable-test mode" below to isolate ports 1 and 2 for testing an Ethernet cable.
WARNING !!!
After entering cable-test mode, ports 1 and 2 will be completely isolated from the rest of the network. Do not enter cable-test mode if you currently have active devices connected to either port 1 or port 2.
Enter cable-test mode

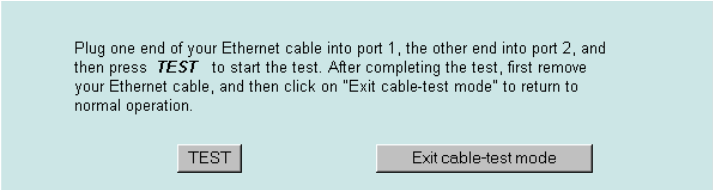
← Web Browser **Cable tester** panel

STEP 2

Plug one end of your cable into port 1, the other end into port 2, and then press **Enter** from the Console utility, or click on **Test** from the Web Browser interface:


COM1,115200,None,8,1,VT100
MOXA EtherDevice Server ED6008-M-SC
Cable tester
[Test] Main menu
Test an Ethernet cable
ESC: previous menu Enter: select
Plug one end of your cable into port 1, the other end into port 2, and then press "ENTER" to start the test.
After completing the test, first remove your Ethernet cable, and then press "Esc" to return to normal operation.
DTR
RTS

← *Console:* Press **Enter** to start testing your Ethernet cable


Plug one end of your Ethernet cable into port 1, the other end into port 2, and then press TEST to start the test. After completing the test, first remove your Ethernet cable, and then click on "Exit cable-test mode" to return to normal operation.
TEST
Exit cable-test mode

← *Web Browser*: Click on **Test** to start testing your Ethernet cable

STEP 3

Examine the results of the test. There are three possible responses:

1. The cable is not wired correctly or has a short.
2. Straight-through cable
3. Cross-over cable

STEP 4

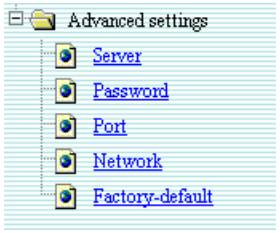
Exit Cable-test mode.

Advanced Settings

The **Advanced settings** functions can be accessed from either the Console utility or from the Web Browser interface, although for technical reasons, the menu items are slightly different.

```
Advanced settings
Server  Port  Network  Factory-default
```

← Console **Advanced settings** menu



← Web Browser **Advanced settings** menu

In what follows, we discuss each **Advanced settings** category separately.

Server

The Console utility and Web Browser interface configuration options are somewhat different, so we first discuss the Console configuration, and then discuss the Web Browser configuration.

NOTE *MOXA EtherDevice Server's default User Name is:* admin, *and by default, the Password is not set (i.e., is* blank*).*
You are required to use a User Name (i.e., it must be non-vacuous), although the Password is optional.

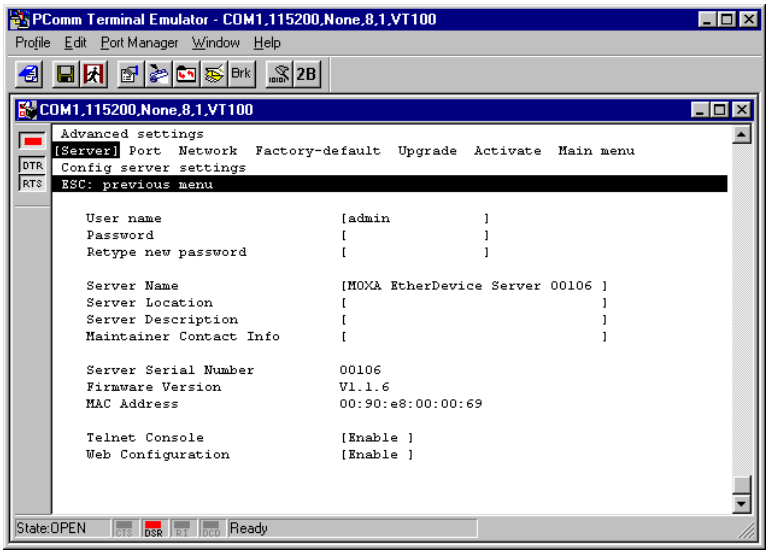
NOTE *Warning e-mail messages will have* ***sender*** *given in the form:*

Moxa_EtherDevice_Server_0001@Server_Location

where ***Moxa_EtherDevice_Server*** *is the default Server Name,* ***0001*** *is EDS's serial number, and* ***Server_Location*** *is the default Server Location.*

Console Configuration

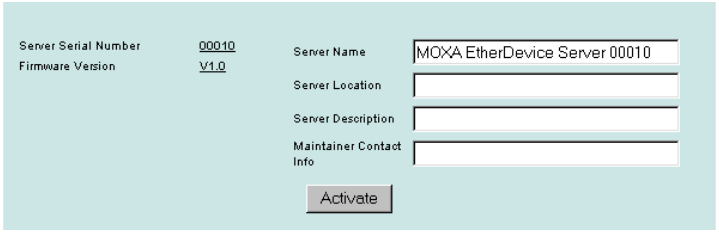
The Console utility's **Server** category allows the user to configure information related to the basic function of MOXA EtherDevice Server. A description of each configuration item is given below.



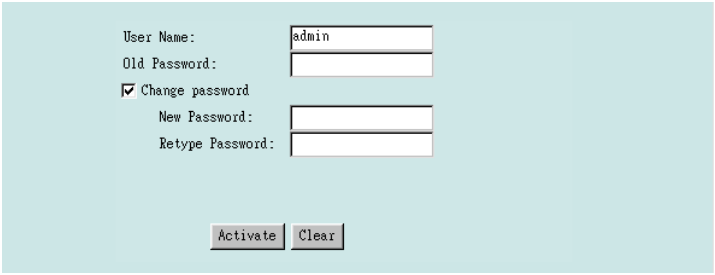
Configuration Item	Description
User name	If a Password is set, then the User name is required when logging into either the RS-232 Console, Telnet Console, or Web Browser interface.
Password	If a Password is already set, then you will be required to type the Password when logging into either the RS-232 Console, Telnet Console, or Web Browser interface.
Retype new password	If you type a new password in the Password field, you will be required to retype the password in the Retype new password field before exiting the Server page.
Server Name	These four items are included to provide the user with a convenient means of storing key information about MOXA EtherDevice Server—particularly useful when you are responsible for maintaining a large number of Servers.
Server Location	
Server Description	
Maintainer Contact Info	
Server Serial Number	Assigned by MOXA
Firmware Version	Changes each time you update the firmware.
MAC Address	Assigned by MOXA
Telnet Console	Select **Enable** to allow users to access the Telnet Console over the network
	Select **Disable** to prevent users from accessing the Telnet Console
Web Configuration	Select **Enable** to allow users to access the Web Browser interface over the network
	Select **Disable** to prevent users from accessing the Web Browser interface

Web Browser Configuration

The Web Browser interface's **Server** and **Password** categories allow the user to configure information related to the basic function of MOXA EtherDevice Server, as shown in the figures below.



← Web Browser **Server** configuration panel



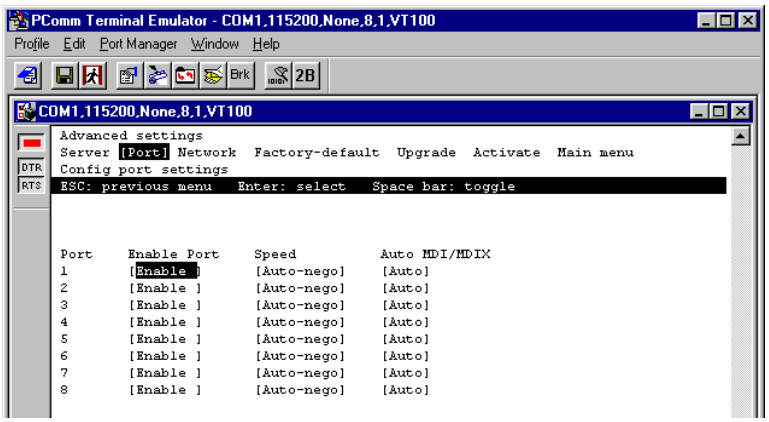
← Web Browser **Password** configuration panel

NOTE ***To reset the User Name*** *from the Web Browser interface, type the new username in the User Name text box, type the current password in the Old Password text box, uncheck the Change password check-box, and then click on Activate.*

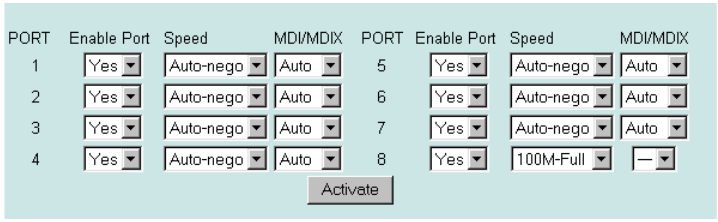
To reset the Password *from the Web Browser interface, type the User Name, Old Password, check-mark the Change password check-box, type the New Password, retype the New password, and then click on Activate.*

Port

The **Port** settings are included to give the user control over Port Access, Port Transmission Speed, and Port Type (MDI or MDIX). These items can be configured from either the Console utility or Web Browser interface. An explanation of each configuration item is given below.


PComm Terminal Emulator - COM1,115200,None,8,1,VT100
Profile Edit Port Manager Window Help
COM1,115200,None,8,1,VT100
Advanced settings
Server [Port] Network Factory-default Upgrade Activate Main menu
Config port settings
ESC: previous menu Enter: select Space bar: toggle
Port Enable Port Speed Auto MDI/MDIX
1 [Enable] [Auto-nego] [Auto]
2 [Enable] [Auto-nego] [Auto]
3 [Enable] [Auto-nego] [Auto]
4 [Enable] [Auto-nego] [Auto]
5 [Enable] [Auto-nego] [Auto]
6 [Enable] [Auto-nego] [Auto]
7 [Enable] [Auto-nego] [Auto]
8 [Enable] [Auto-nego] [Auto]

← Console **Port** configuration page


PORT Enable Port Speed MDI/MDIX PORT Enable Port Speed MDI/MDIX
1 Yes Auto-nego Auto 5 Yes Auto-nego Auto
2 Yes Auto-nego Auto 6 Yes Auto-nego Auto
3 Yes Auto-nego Auto 7 Yes Auto-nego Auto
4 Yes Auto-nego Auto 8 Yes 100M-Full —
Activate

← Web Browser **Port** configuration panel

Port Access

Enable Port	Description
Enable	Choose this option to allow data transmission through the port.
Disable	Choose this option to immediately shut off port access.

NOTE *If a connected device or sub-network is wreaking havoc on the rest of the network, the **Disable** option under **Advanced Settings/Port** gives the administrator a quick way to immediately shut off access through this port.*

Port Transmission Speed

Speed	Description
Auto-nego	This is the default Speed option. It allows the port to access any of the four transmission types listed below.
100M-Full	Choose one of these fixed speed options if the opposing Ethernet device has trouble auto-negotiating for line speed.
100M-Half	
10M-Full	
10M-Half	

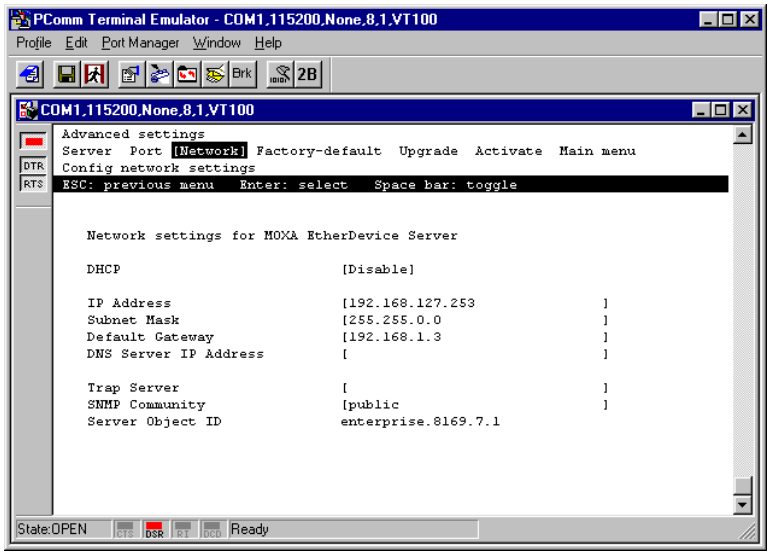
Port Type

MDI	Choose the MDI or MDIX option if the opposing Ethernet device has trouble auto-negotiating for port type, or if you chose a fixed speed option.
MDIX	

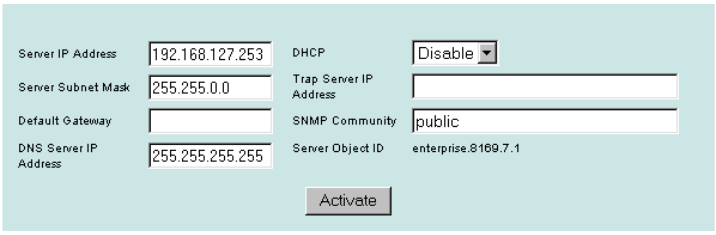
NOTE *MOXA EtherDevice Server does not support simultaneously selecting **a fixed Speed** option and **Auto** under **Auto MDI/MDIX**.*
*If you choose a fixed **Speed** option, then you must choose either **MDI** or **MDIX** under **Auto MDI/MDIX**.*

Network

The **Network** configuration allows users to modify the usual TCP/IP network parameters. These items can be configured from either the Console utility or Web Browser interface. An explanation of each configuration item is given below.


PComm Terminal Emulator - COM1,115200,None,8,1,VT100
Profile Edit Port Manager Window Help
COM1,115200,None,8,1,VT100
Advanced settings
Server Port [Network] Factory-default Upgrade Activate Main menu
Config network settings
ESC: previous menu Enter: select Space bar: toggle
Network settings for MOXA EtherDevice Server
DHCP [Disable]
IP Address [192.168.127.253]
Subnet Mask [255.255.0.0]
Default Gateway [192.168.1.3]
DNS Server IP Address [ ]
Trap Server [ ]
SNMP Community [public]
Server Object ID enterprise.8169.7.1
State:OPEN
Ready

← Console **Network** page



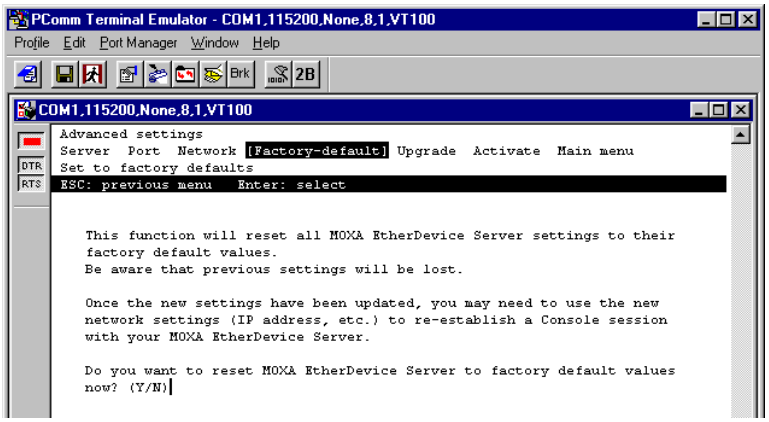
← Web Browser **Network** panel

Configuration Item	Description
DHCP	Select **Enable** to have MOXA EtherDevice Server's IP address automatically assigned by your network's DHCP server. Select **Disable** to set up MOXA EtherDevice Server's IP address manually.
IP Address	Identifies MOXA EtherDevice Server on a TCP/IP network.
Subnet mask	Identifies the type of network MOXA EtherDevice Server is connected to. Enter 255.255.0.0 for a Class B network, and 255.255.255.0 for a Class C network.
Default Gateway	Enter your router's IP address if your LAN connects to an outside network.
DNS Server's IP Address	Enter the IP address of the DNS Server used by your network.*
Trap Server IP Address	Enter the IP address of the Trap Server used by your network.
SNMP Community	Provides some added managerial security, since only SNMP servers with the same "SNMP Community" can read the EDS's MIB values.
Server Object ID	The private SNMP Object ID of Moxa EtherDevice Server.

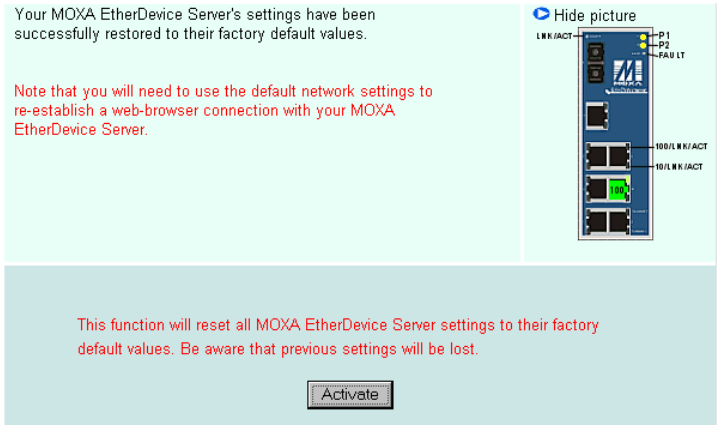
*After entering the DNS Server's IP address, you can input MOXA EtherDevice Server's url (e.g., www.eds.company.com) in your browser's address field, instead of entering the IP address.

Factory Default

The Factory Default function is included to give users a quick way of restoring MOXA EtherDevice Server's configuration settings to their factory default values. This function can be accessed from either the Console utility or Web Browser interface.


PComm Terminal Emulator - COM1,115200,None,8,1,VT100
Profile Edit Port Manager Window Help
COM1,115200,None,8,1,VT100
Advanced settings
Server Port Network [Factory-default] Upgrade Activate Main menu
Set to factory defaults
ESC: previous menu Enter: select
This function will reset all MOXA EtherDevice Server settings to their factory default values.
Be aware that previous settings will be lost.
Once the new settings have been updated, you may need to use the new network settings (IP address, etc.) to re-establish a Console session with your MOXA EtherDevice Server.
Do you want to reset MOXA EtherDevice Server to factory default values now? (Y/N)

← Console **Factory default** page


Your MOXA EtherDevice Server's settings have been successfully restored to their factory default values.
Note that you will need to use the default network settings to re-establish a web-browser connection with your MOXA EtherDevice Server.
Hide picture
This function will reset all MOXA EtherDevice Server settings to their factory default values. Be aware that previous settings will be lost.
Activate

← Web Browser **Factory default** panel

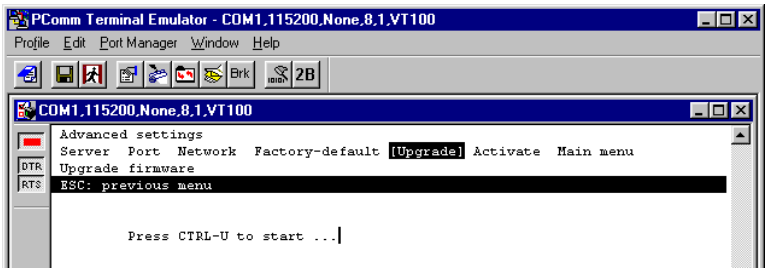
NOTE *After activating the Factory Default function, you will need to use the default network settings to re-establish a web-browser or Telnet connection with your MOXA EtherDevice Server.*

Upgrade Firmware by Console

In this section, we explain how to upgrade EDS's firmware via the console port. Recall from a previous section in this chapter that the console connection parameters are 115200, None, 8, 1, VT100.

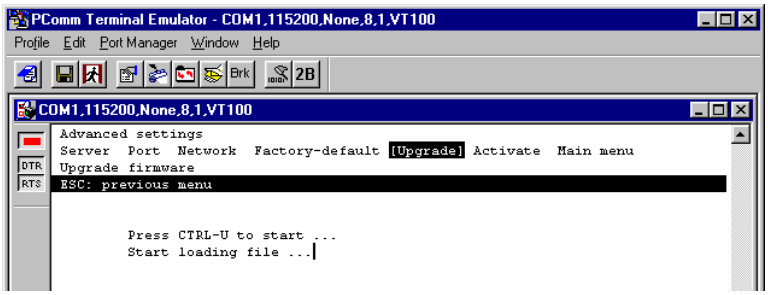
STEP 1

Activate the Console Upgrade function, and then press CTRL-U to start.


PComm Terminal Emulator - COM1,115200,None,8,1,VT100
Profile Edit Port Manager Window Help
COM1,115200,None,8,1,VT100
Advanced settings
Server Port Network Factory-default [Upgrade] Activate Main menu
Upgrade firmware
ESC: previous menu
Press CTRL-U to start ...

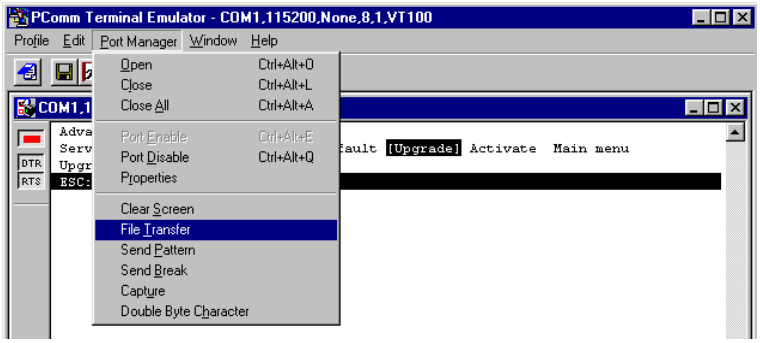
STEP 2

Once the **Start loading file …** message appears, you can locate the *.rom firmware file that contains the new firmware.


PComm Terminal Emulator - COM1,115200,None,8,1,VT100
Profile Edit Port Manager Window Help
COM1,115200,None,8,1,VT100
Advanced settings
Server Port Network Factory-default [Upgrade] Activate Main menu
Upgrade firmware
ESC: previous menu
Press CTRL-U to start ...
Start loading file ...

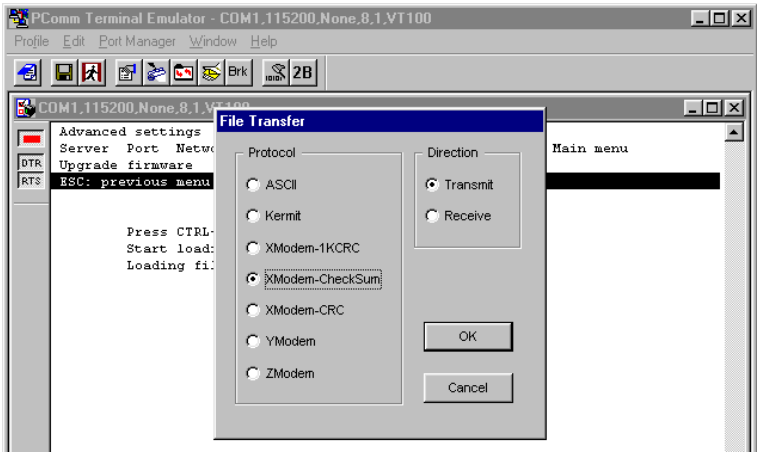
STEP 3

Select **File Transfer** under the **Port Manager** menu.



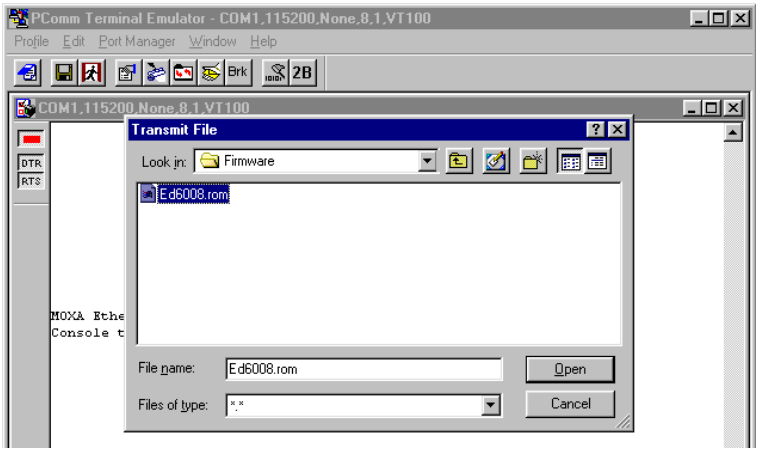
STEP 4

Select the **Xmodem-CheckSum** file transfer protocol, and then click **OK**.



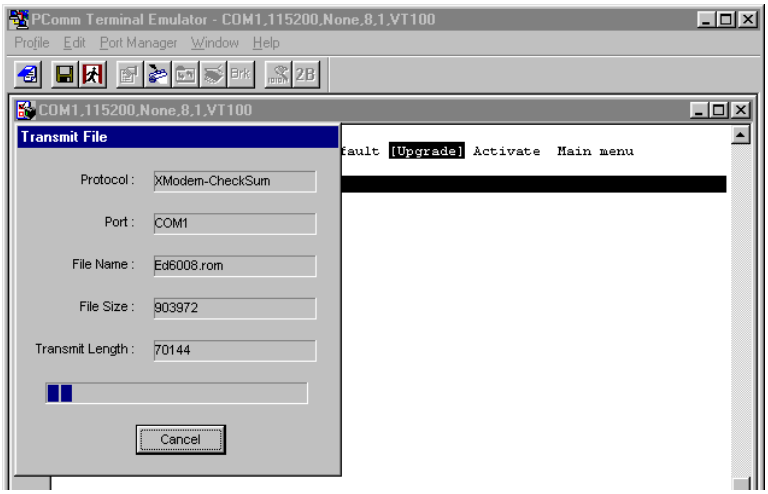
STEP 5

Use the **Look in** dropdown window to locate the correct *.rom file, in this case **Ed6008.rom**, and then click on **Open**.



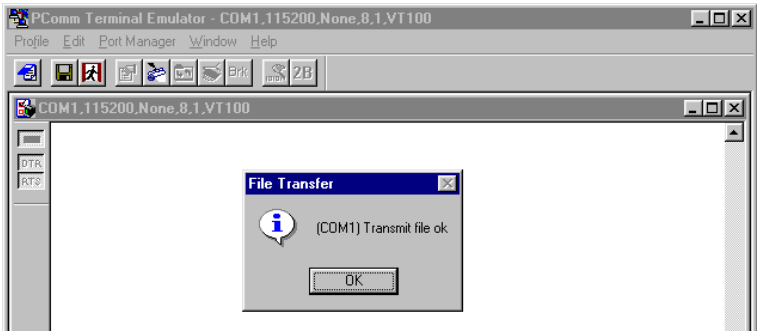
STEP 6

The file transfer will begin.



STEP 7

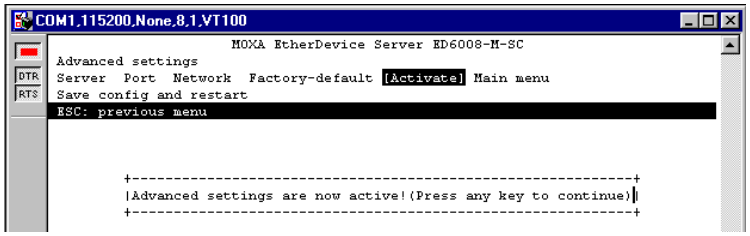
When the **(COM1) Transmit file OK** message appears, click **OK** to complete the upgrade procedure.



Activate Settings

You must activate your settings before exiting **Advanced settings**.

1. When using the Web Browser interface, activate by clicking on the **Activate** button before closing the web pages (**Server**, **Password**, **Port**, **Network**, and **Factory default**) discussed above.
2. When using the Console utility, activate by first highlighting the **Activate** menu option, and then press **Enter**. You should receive the **Advanced settings are now active! (Press any key to continue)** message.



7

EDS Configurator GUI

EDS Configurator is a comprehensive Windows-based GUI that can be used to conveniently configure and maintain multiple MOXA EtherDevice Servers. A suite of useful utilities is available to help you: locate MOXA EtherDevice Servers attached to the same LAN as the PC host (regardless of whether or not you know the Servers' IP addresses), connect to a MOXA EtherDevice Server whose IP address is known, modify one or multiple MOXA EtherDevice Servers' network and/or serial configurations, and update the firmware of one or more MOXA EtherDevice Servers. EDS Configurator is designed to provide you with instantaneous control of *all* of your MOXA EtherDevice Servers, regardless of location. You may download the EDS Configurator software from Moxa's website free of charge.

The following topics are covered in this chapter:

- **Starting EDS Configurator**
- **Broadcast Search**
- **Search by IP address**
- **Upgrade Firmware**
- **Modify IP Address**
- **Export Configuration**
- **Import Configuration**
- **Unlock Server**

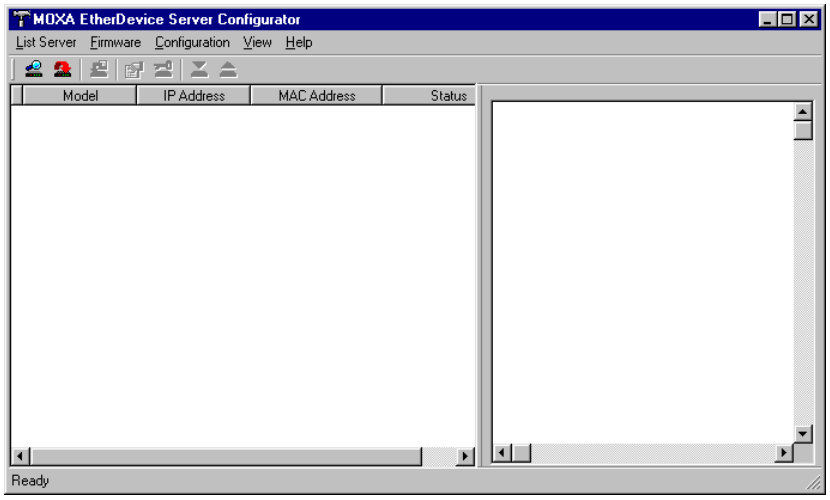
Starting EDS Configurator

To start EDS Configurator, locate and then run the executable file **edscfgui.exe**.

NOTE *You may download the EDS Configurator software from Moxa's website at www.moxa.com.*

For example, if the file was placed on the Windows desktop, it should appear as follows. Simply double click on the icon to run the program.

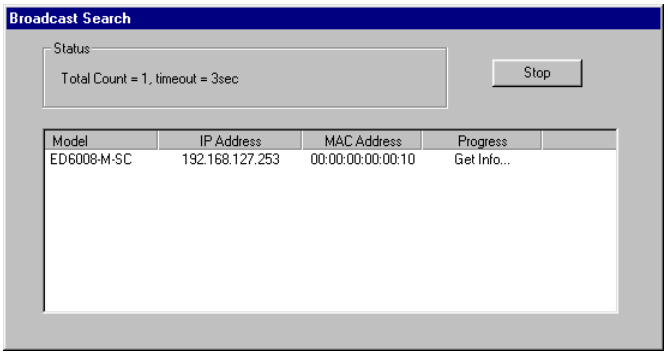
The MOXA EtherDevice Server Configurator window will open, as shown below.



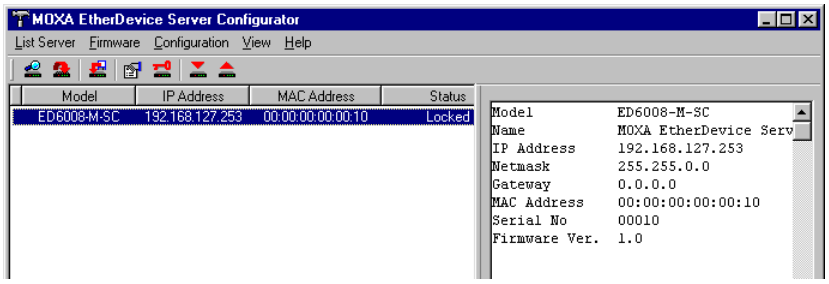
Broadcast Search

Use the Broadcast Search utility to search the LAN for all connected MOXA EtherDevice Servers. Since the search is done by MAC address, Broadcast Search will not be able to locate MOXA EtherDevice Servers connected outside the PC host's LAN. Start by clicking on the Broadcast Search icon , or by selecting **Broadcast Search** under the **List Server** menu.

The Broadcast Search window will open, displaying a list of all Servers located on the network, as well as the progress of the search.



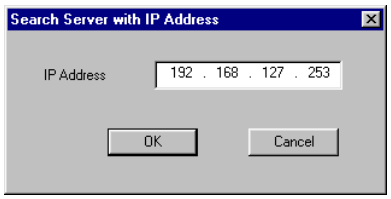
Once the search is complete, the Configurator window will display a list of all Servers that were located.



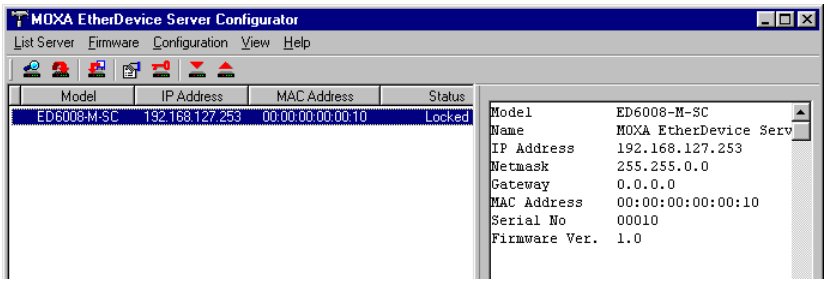
Search by IP address

This utility is used to search for MOXA EtherDevice Servers one at a time. Since the search is conducted by IP address, you should be able to locate any MOXA EtherDevice Server that is properly connected to your LAN, WAN, or even the Internet. Start by clicking on the Specify by IP address icon , or by selecting **Specify IP address** under the **List Server** menu.

The **Search Server with IP Address** window will open. Enter the IP address of the Server you wish to search for, and then click **OK**.



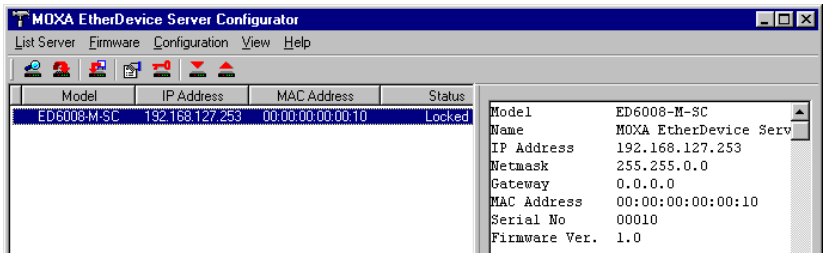
Once the search is complete, the Configurator window will add the Server to the list of Servers.



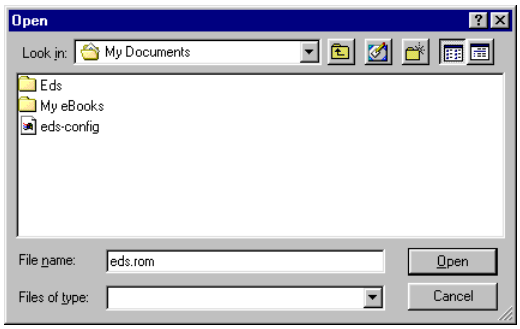
Upgrade Firmware

Keep your MOXA EtherDevice Server up to date with the latest firmware from Moxa. Take the following steps to upgrade the firmware:

1. Download the updated firmware (*.rom) file from the Moxa website (www.moxa.com).
2. Highlight the server (from the **MOXA EtherDevice Server Configurator** window) whose firmware you wish to upgrade.



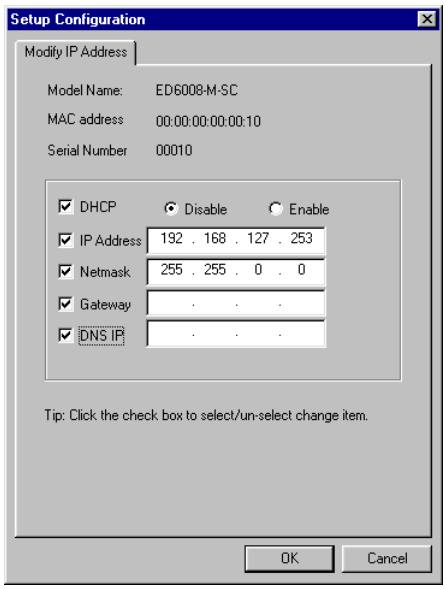
3. Click on the **Upgrade Firmware** toolbar icon , or select **Upgrade** under the **Firmware** menu. If the Server is Locked, you will be prompted to input the server's User Name and Password.
4. Use the **Open** window to navigate to the folder that contains the firmware upgrade file, and then click on the correct "*.rom" file (**eds.rom** in the example shown below) to select the file. Click on **Open** to activate the upgrade process.



Modify IP Address

You may use the Modify IP Address function to easily reconfigure MOXA EtherDevice Server's network settings. Start by clicking on the Modify IP address icon , or by selecting **Modify IP address** under the **Configuration** menu.

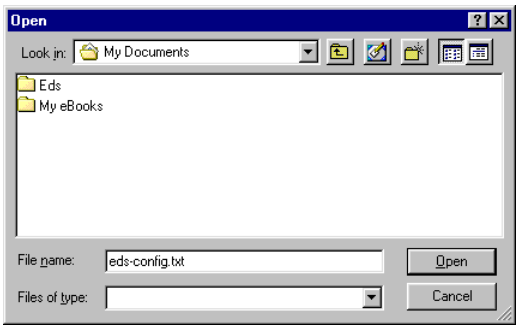
The **Setup Configuration** window will open. Checkmark the box to the left of those items that you wish to modify, and then Disable or Enable DHCP, and enter IP Address, Netmask, Gateway, and DNS IP. Click **OK** to accept the changes to the configuration.



Export Configuration

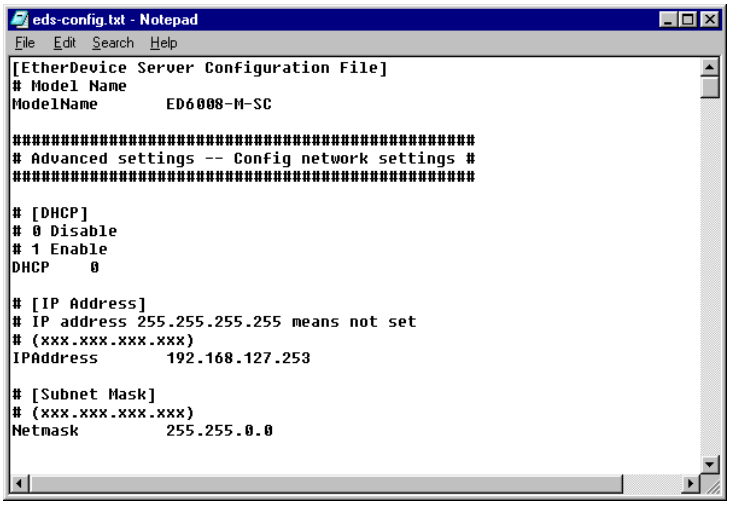
The **Export Configuration** utility is used to save the entire configuration of a particular MOXA EtherDevice Server to a text file. Take the following steps to export a configuration:

1. Highlight the server (from the NPort Server list in the Configurator window's left pane), and then click on the **Export** toolbar icon or select **Export Configuration** from the **Configuration** menu. Use the **Open** window to navigate to the folder in which you want to store the configuration, and then type the name of the file in the File name input box. Click on **Open**.



2. Click **OK** when the **Export configuration to file OK** message appears.

3. You may use a standard text editor, such as Notepad under Windows, to view and modify the newly created configuration file.

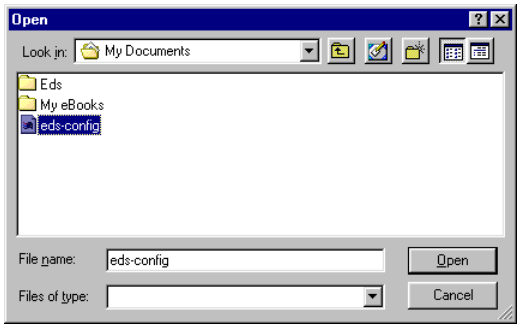


Import Configuration

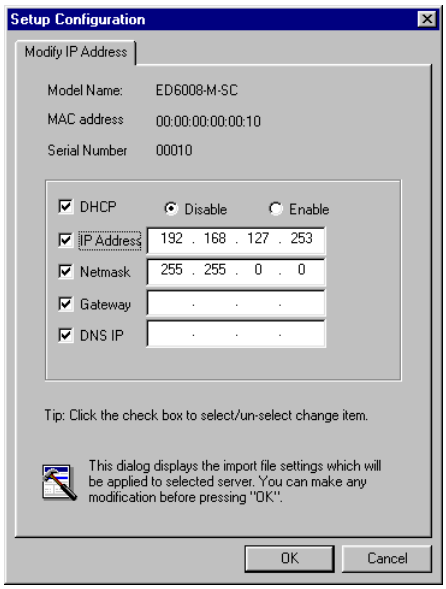
The **Import Configuration** function is used to import an entire configuration from a text file to MOXA EtherDevice Server. This utility can be used to transfer the configuration from one MOXA EtherDevice Server to another, by first using the Export Configuration function (described in the previous section) to save a Server configuration to a file, and then using the Import Configuration function. Take the following steps to import a configuration:

1. Highlight the server (from the MOXA EtherDevice Server list in the Configurator window's left pane), and then click on the **Import** toolbar icon , or select **Import Configuration** from the **Configuration** menu.

2. Use the **Open** window to navigate to the text file that contains the desired configuration. Once the file is selected, click on **Open** to initiate the import procedure.



3. The **Setup Configuration** window will be displayed, with a special note attached at the bottom. Parameters that have been changed will be activated with a check mark. You may make more changes if necessary, and then click **OK** to accept.



4. Click on **Yes** in response to the following warning message to accept the new settings.

MOXA EtherDevice Server Configurator
Warning!
Some or all of your MOXA EtherDevice Server's own network settings have been changed.
Once the new settings have been updated,you may need to use the new network settings (IP address, Netmask, Gateway, etc.) to re-establish a Console session with your MOXA EtherDevice Server. Would you like to update network setting now ?
Yes
No

Unlock Server

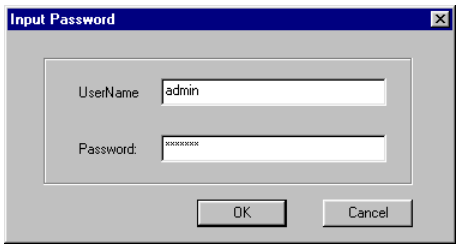
The Unlock Server function is used to open a password protected Server so that the user can modify its configuration, import/export a configuration, etc. To begin with, we point out that there are six possible responses under the **Status** column. The **Status** of a MOXA EtherDevice Server indicates how the server was located (by MOXA EtherDevice Server Configurator), and what type of password protection it has.

The six options are as follows (note that the term **Fixed** is borrowed from the standard *fixed IP address* networking terminology):

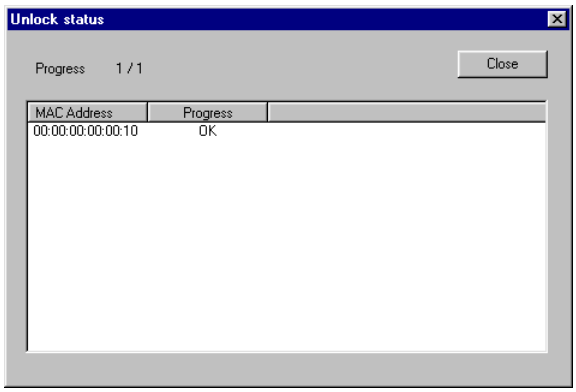
- **Locked**
  The Server is password protected, "Broadcast Search" was used to locate it, and the password has not yet been entered from within the current Configurator session.
- **Unlocked**
  The Server is password protected, "Broadcast Search" was used to locate it, and the password has been entered from within the current Configurator session. Henceforth during this Configurator session, activating various utilities for this Server will not require re-entering the server password.
- ***blank***
  EDS is not password protected, and "Broadcast Search" was used to locate it.
- **Fixed**
  EDS is not password protected, and "Search by IP address" was used to locate it manually.
- **Locked Fixed**
  EDS is password protected, "Search by IP address" was used to locate it manually, and the password has not yet been entered from within the current Configurator session.
- **Unlocked Fixed**
  EDS is password protected, "Search by IP address" was used to locate it manually, and the password has been entered from within the current Configurator session. Henceforth during this Configurator session, activating various utilities for this MOXA EtherDevice Server will not require re-entering the server password.

Follow the steps given below to unlock a locked MOXA EtherDevice Server (i.e., a MOXA EtherDevice Server with Status "Locked" or "Locked Fixed").
Highlight the server (from the MOXA EtherDevice Server list in the Configurator window's left pane), and then click on the **Unlock** toolbar icon , or select **Unlock** from the **Configuration** menu.

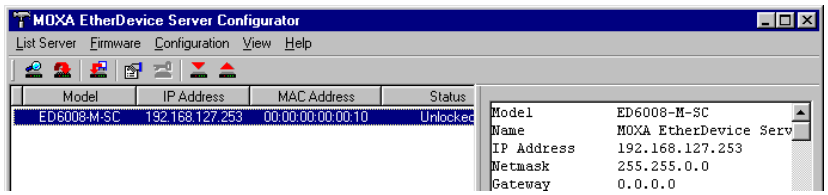
1. Enter the Server's **User Name** and **Password** when prompted, and then click **OK**.



2. When the **Unlock status** window reports Progress as **OK**, click on the **Close** button in the upper right corner of the window.



3. The Status of the Server will now read either **Unlocked** or **Unlocked Fixed**.



A

SNMP Agents with MIB II

MOXA EtherDevice Server comes with built-in SNMP (Simple Network Management Protocol) agent software that supports cold/warm start trap, line up/down trap, and RFC 1213 MIB-II.

In this appendix, we cover the following topics.

- **Supported SNMP Variables**
- **MIB Value Descriptions**

Supported SNMP Variables

The following tables list the standard MIB-II groups, as well as the variable implementation for ED6008.

System MIB	Interfaces MIB	IP MIB
sysDescr	ifNumber	ipForwarding
sysObjectID	ifIndex	ipDefaultTTL
sysUpTime	ifDescr	ipInReceives
sysContact	ifType	ipInHdrErrors
sysName	ifMtu	ipInAddrErrors
sysLocation	ifSpeed	ipForwDatagrams
sysServices	ifPhysAddress	ipInUnknownProtos
sysORLastChange	ifAdminStatus	ipInDiscards
sysORID	ifOperStatus	ipInDelivers
sysORDescr	ifLastChange	ipOutRequests
sysORUpTime	ifInOctets	ipOutDiscards
	ifInUcastPkts	ipOutNoRoutes
	ifInNUcastPkts	ipReasmTimeout
	ifInDiscards	ipReasmReqds
	ifInErrors	ipReasmOKs
	ifInUnknownProtos	ipReasmFails
	ifOutOctets	ipFragOKs
	ifOutUcastPkts	ipFragFails
	ifOutNUcastPkts	ipFragCreates
	ifOutDiscards	ipAdEntAddr
	ifOutErrors	ipAdEntIfIndex
	ifOutQLen	ipAdEntNetMask
	ifSpecific	ipAdEntBcastAddr
		ipAdEntReasmMaxSize
		ipNetToMediaIfIndex
		ipNetToMediaPhysAddress
		ipNetToMediaNetAddress
		ipNetToMediaType
		ipRoutingDiscards

ICMP MIB	UDP MIB	TCP MIB
icmpInMsgs	udpInDatagrams	tcpRtoAlgorithm
icmpInErrors	udpNoPorts	tcpRtoMin
icmpInDestUnreachs	udpInErrors	tcpRtoMax
icmpInTimeExcds	udpOutDatagrams	tcpMaxConn
icmpInParmProbs	udpLocalAddress	tcpActiveOpens
icmpInSrcQuenchs	udpLocalPort	tcpPassiveOpens
icmpInRedirects		tcpAttemptFails
icmpInEchos		tcpEstabResets
icmpInEchoReps		tcpCurrEstab
icmpInTimestamps		tcpInSegs
icmpInTimestampReps		tcpOutSegs
icmpInAddrMasks		tcpRetransSegs
icmpInAddrMaskReps		tcpConnState
icmpOutMsgs		tcpConnLocalAddress
icmpOutErrors		tcpConnLocalPort
icmpOutDestUnreachs		tcpConnRemAddress
icmpOutTimeExcds		tcpConnRemPort
icmpOutParmProbs		tcpInErrs
icmpOutSrcQuenchs		tcpOutRsts
icmpOutRedirects		
icmpOutEchos		
icmpOutEchoReps		
icmpOutTimestamps		
icmpOutTimestampReps		
icmpOutAddrMasks		
icmpOutAddrMaskReps		

SNMP MIB	DOT3 MIB
snmpInPkts	dot3StatsIndex
snmpOutPkts	dot3StatsAlignmentErrors
snmpInBadVersions	dot3StatsFCSErrors
snmpInBadCommunityNames	dot3StatsSingleCollisionFrames
snmpInBadCommunityUses	dot3StatsMultipleCollisionFrames
snmpInASNParseErrs	dot3StatsSQETestErrors
snmpInTooBigs	dot3StatsDeferredTransmissions
snmpInNoSuchNames	dot3StatsLateCollisions
snmpInBadValues	dot3StatsExcessiveCollisions
snmpInReadOnlys	dot3StatsInternalMacTransmitErrors
snmpInGenErrs	dot3StatsCarrierSenseErrors
snmpInTotalReqVars	dot3StatsFrameTooLongs
snmpInTotalSetVars	dot3StatsInternalMacReceiveErrors
snmpInGetRequests	dot3StatsEtherChipSet
snmpInGetNexts	dot3StatsSymbolErrors
snmpInSetRequests	dot3StatsDuplexStatus
snmpInGetResponses	
snmpInTraps	
snmpOutTooBigs	
snmpOutNoSuchNames	
snmpOutBadValues	
snmpOutGenErrs	
snmpOutGetRequests	
snmpOutGetNexts	
snmpOutSetRequests	
snmpOutGetResponses	
snmpOutTraps	
snmpEnableAuthenTraps	

MIB Value Descriptions

Note that MIB values are based on a private enterprise's MIB; "enterprises.moxa.industrialEthernet.etherDevice" are given below.

edPortsNumber Gives the number of ports that are attached to this system.
serverModel Shows the server model of this system.
serialNumber Shows the serial number of this system.
firmwareVersion Shows the firmware version of this system.
enableWebConfig Shows the enable status of web configuration of this system.
enableTelnetConsole Shows the enable status of telnet console of this system.
lineSwapRecovery Shows the enable status of line swap recovery of this system.
networkSetting.serverIpAddr Shows the server IP address of this system's network setting.
networkSetting.serverIpMask Shows the server IP mask of this system's network setting.
networkSetting.defaultGateway Shows the default gateway of this system's network setting.
networkSetting.enableDhcpClient Shows the enable status of dhcp client setting for this system.
networkSetting.dnsServerIpAddr Shows the DNS server IP address of this system's network setting.
networkSetting.snmpCommunityName Shows the SNMP community name of this system's network setting.
networkSetting.trapServerIpAddr Shows the SNMP trap server IP address of this system's network setting.
portSetting.portTable.portEntry.portSettingIndex Gives the port number of this system's port setting.
portSetting.portTable.portEntry.portEnable Shows the port enable value of this system's port setting.
portSetting.portTable.portEntry.portSpeed Shows the port speed of this system's port setting.

portSetting.portTable.portEntry.portMDI Shows the port MDI value of this system's port setting.
monitor.power1InputStatus Shows the power1 status of this system.
monitor.power2InputStatus Shows the power2 status of this system.
monitor.monitorTable.monitorEntry.monitorPortIndex Gives the port number of this system's monitoring.
monitor.monitorTable.monitorEntry.monitorLinkStatus Shows the port link status of this system.
monitor.monitorTable.monitorEntry.monitorSpeed Shows the port speed status of this system.
monitor.monitorTable.monitorEntry.monitorAutoMDI Shows the port MDI status of this system.
monitor.monitorTable.monitorEntry.monitorTraffic Shows the port traffic of this system.
autoWarning.emailService.mailServerIpAddr Shows the mail server IP address of this system.
autoWarning.emailService.firstEmailAddr Shows the first e-mail address of this system's auto warning.
autoWarning.emailService.secondEmailAddr Shows the second e-mail address of this system's auto warning.
autoWarning.emailService.thirdEmailAddr Shows the third e-mail address of this system's auto warning.
autoWarning.emailService.fourthEmailAddr Shows the fourth e-mail address of this system's auto warning.
autoWarning.eventType.serverColdStart Shows the enable status of server cold start events of this system's auto warning.
autoWarning.eventType.serverWarmStart Shows the enable status of server warm start events of this system's auto warning.
autoWarning.eventType.configChange Shows the enable status of server configuration changed events of this system's auto warning.
autoWarning.eventType.powerOn2Off Shows the enable status of server power off events of this system's auto warning.
autoWarning.eventType.powerOff2On Shows the enable status of server power on events of this system's auto warning.

autoWarning.eventType.authFail Shows the enable status of server authentication fail events of this system's auto warning.
autoWarning.eventType.commRedundancyTopologyChanged Shows the enable status of comm. redundancy topology changed events of this system's auto warning
autoWarning.portAutoWarningTable.portAutoWarningEntry.portIndex Gives the port number of this system's auto warning port setting.
autoWarning.portAutoWarningTable.portAutoWarningEntry.portLinkOn Shows the enable status of port link on events of this system's auto warning.
autoWarning.portAutoWarningTable.portAutoWarningEntry.portLinkOff Shows the enable status of port link off events of this system's auto warning.
autoWarning.portAutoWarningTable.portAutoWarningEntry.portTrafficOverload Shows the enable status of port traffic overload events of this system's auto warning.
autoWarning.portAutoWarningTable.portAutoWarningEntry.portTrafficThreshold Shows the threshold value of port traffic overload events of this system's auto warning.
setDeviceIp.setDevIpTable.setDevIpEntry.setDevIpIndex Gives the port number of this system's dedicated device IP setting.
setDeviceIp.setDevIpTable.setDevIpEntry.setDevIpCurrentIpofDevice Shows the port auto detected IP addresses of this system's dedicated device IP setting.
setDeviceIp.setDevIpTable.setDevIpEntry.setDevIpPresentBy Shows the port IP presented by of this system's dedicated device IP setting.
setDeviceIp.setDevIpTable.setDevIpEntry.setDevIpDedicatedIp Shows the port dedicated IP address of this system's dedicated device IP setting.
mirroring.targetPort Shows the target port of this system's mirroring.
mirroring.mirroringPort Shows the mirroring port of this system's mirroring.
mirroring.monitorDirection Shows the mirroring direction of this system's mirroring.
commRedundancy.ringQuickSetup Shows the enable status of redundant ring quick setup of this system.
commRedundancy.root Shows this system is the root of the bridge spanning tree.
commRedundancy.bridgePriority Shows the bridge priority value of this system.
commRedundancy.helloTime Shows the bridge hello time value of this system.

commRedundancy.maxAge Shows the bridge max age time value of this system.
commRedundancy.forwardingDelay Shows the bridge forwarding delay time value of this system.
commRedundancy.redundancyTable.redundancyEntry.redundancyIndex Gives the port number of this system's communication redundancy setting.
commRedundancy.redundancyTable.redundancyEntry.enableSTP Shows the port enable status of bridge STP of this system.
commRedundancy.redundancyTable.redundancyEntry.portPriority Shows the port priority value of this system's communication redundancy setting.
commRedundancy.redundancyTable.redundancyEntry.portCost Shows the port cost value of this system's communication redundancy setting.
commRedundancy.redundancyTable.redundancyEntry.status Shows the port status of this system's communication redundancy setting.

B

Service Information

This appendix shows you how to contact Moxa for information about this and other products, and how to report problems.

- **MOXA Internet Services**
- **Problem Report Form**
- **Return Procedure**

MOXA Internet Services

Customer satisfaction is our number one concern, and to ensure that customers receive the full benefit of our products, Moxa Internet Services has been set up to provide technical support, driver updates, product information, and user's manual updates.

The following services are provided

E-mail for technical support..... service@moxa.com.tw

FTP site for free driver updates..... ftp://ftp.moxa.com or

..... ftp://ftp.moxa.com.tw

user ID.....*ftp*

password ..... your_email_address

World Wide Web (WWW) Site for product information:

..... http://www.moxa.com or

..... http://www.moxa.com.tw

Problem Report Form

MOXA EtherDevice Server

Customer name:	
Company:	
Tel:	**Fax:**
Email:	**Date:**

1. **Moxa Product:** ☐ ED6008 ☐ ED6008-M-SC ☐ ED6008-S-SC
   ☐ ED6008-MM-SC ☐ ED6008-SS-SC
2. **Serial Number:** _____

Problem Description: Please describe the symptoms of the problem as clearly as possible, including any error messages you see. We may need to follow your description to reproduce the symptoms, so please give a complete description of the problem.

Return Procedure

For product repair, exchange, or refund, the customer must:

- Provide evidence of original purchase.
- Obtain a Product Return Agreement (PRA) from the sales representative or dealer.
- Fill out the Problem Report Form (PRF). Include as much detail as possible for a shorter product repair time.
- Carefully pack the product in an anti-static package, and send it, pre-paid, to the dealer. The PRA should be visible on the outside of the package, and include a description of the problem, along with the return address and telephone number of a technical contact.